

[illegible]

Schlumberger

Company: **Kerr McGee Oil and Gas Onshore, LP**

Well: Parterre 13-16

Field: **Spindle**County: **Adams**

State: Colorado

Platform Express

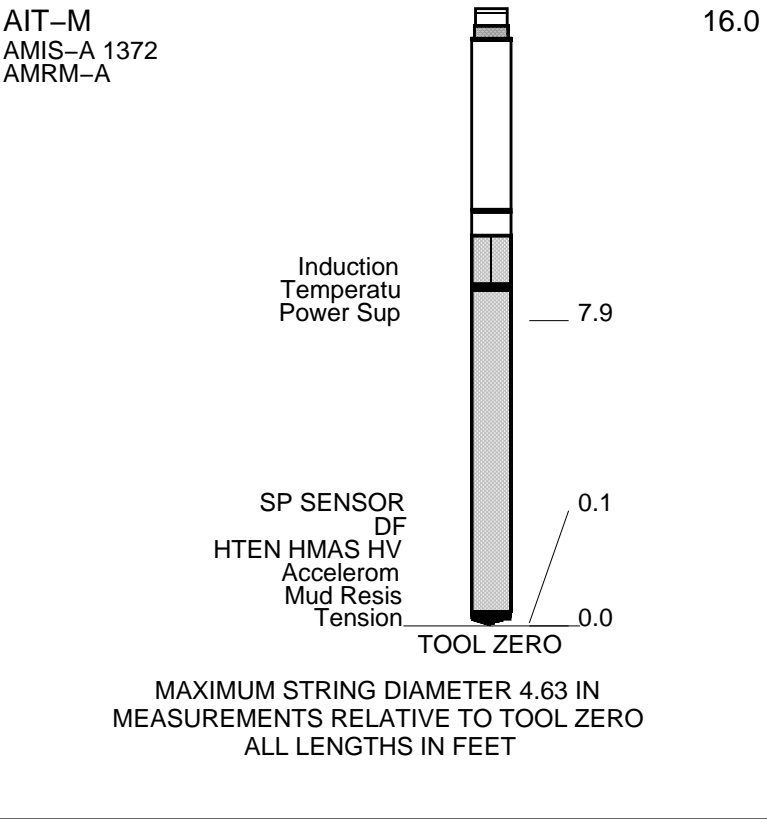
Micro Log

| | | | | | |
|--|--|--------------------------------|--|-------------------------------------|--|
| Field: | | Spindle | | | |
| Location: | | NWSW Sec. 16, T 1S , R 67W | | | |
| Well: | | Parterre 13-16 | | | |
| Company: | | Kerr McGee Oil and Gas Onshore | | | |
| <div>Platform Express</div> <div>Micro Log</div> | | | | | |
| | | | | LOCATION | |
| | | | | NWSW Sec. 16, T 1S , R 67W | |
| | | | | SHL: 1515' FSL / 1274' FWL NWSW | |
| | | | | BHL: 581' FSL / 608' FWL SWSW (est) | |
| Permanent Datum: | | Ground Level | | | |
| Log Measured From: | | Kelly Bushing | | | |
| Drilling Measured From: | | Kelly Bushing | | | |
| API Serial No. 05-001-09685-000C | | Section 16 | | | |
| Township 1S | | Range 67W | | | |

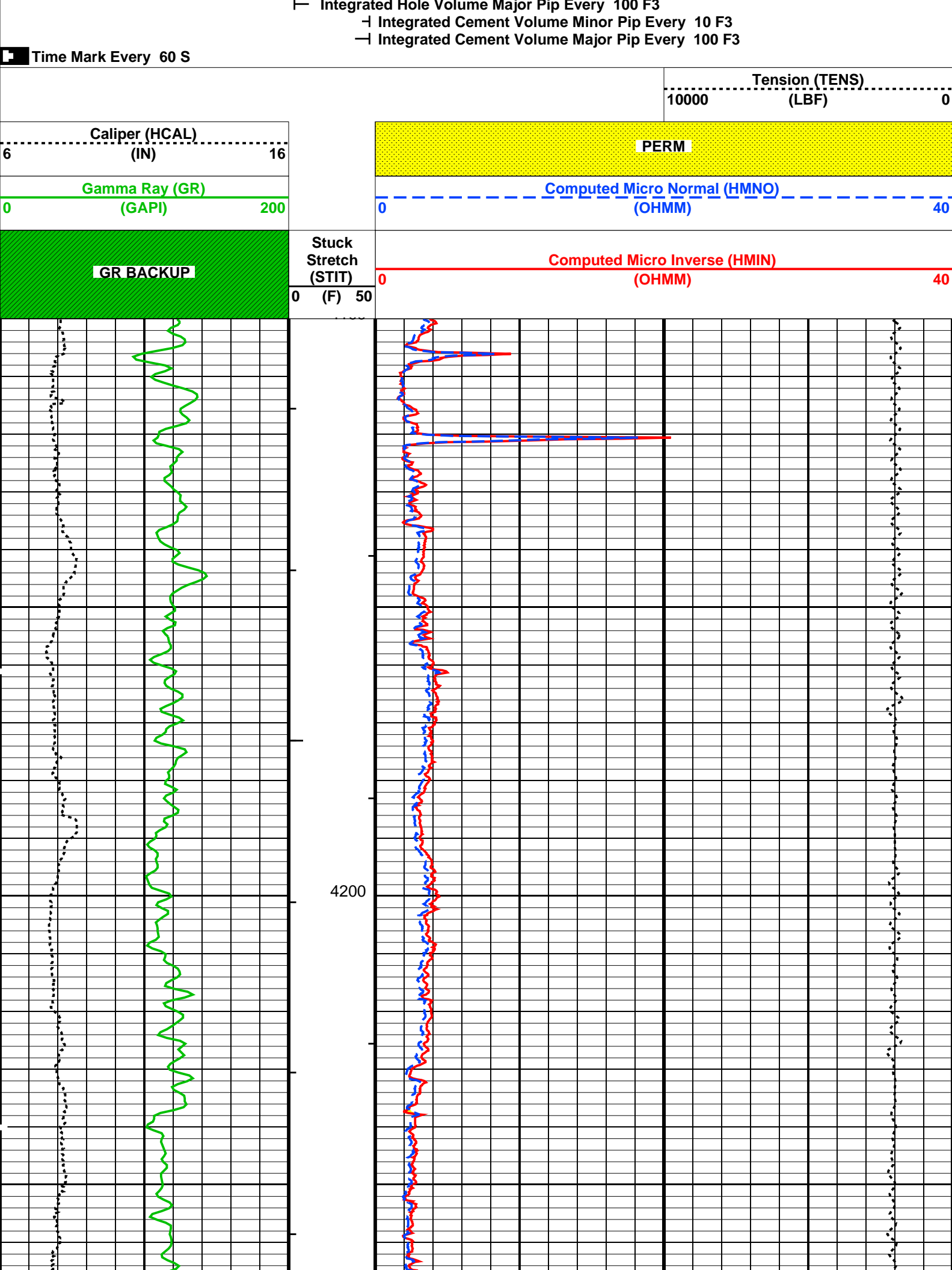
[illegible]

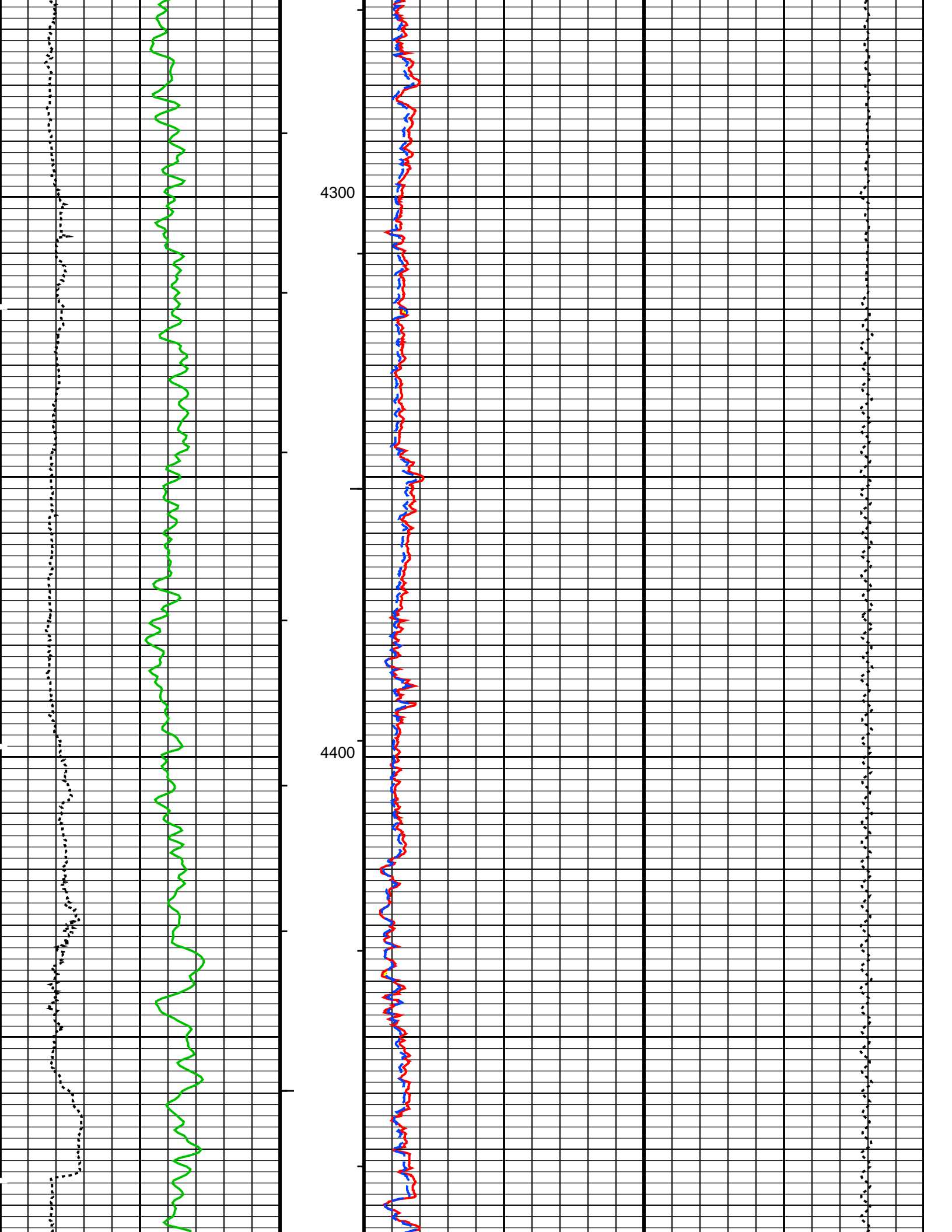
| | | | | | | |
|-------------------------------|------------------------------------|--|-------------|---------|-------|---|
| Logging Date | 2-Dec-2009 | | | | | |
| Run Number | 1 | | | | | |
| Depth Driller | 8870 ft | | | | | |
| Schlumberger Depth | 8796 ft | | | | | |
| Bottom Log Interval | 8788 ft | | | | | |
| Top Log Interval | 1220 ft | | | | | |
| Casing Driller Size @ Depth | 8.625 in @ 1220 ft | | | | | |
| Casing Schlumberger | 1220 ft | | | | | |
| Bit Size | 7.875 in | | | | | |
| Type Fluid In Hole | Fresh Water | | | | | |
| Density | 8.5 lbm/gal | | 2.8 s | | | |
| Fluid Loss | PH | | | | | |
| Source Of Sample | Flowline | | | | | |
| RM @ Measured Temperature | 1.420 ohm.m | | @ | 72 degF | | @ |
| RMF @ Measured Temperature | 1.065 ohm.m | | @ | 0 degF | | @ |
| RMC @ Measured Temperature | 2.130 ohm.m | | @ | 0 degF | | @ |
| Source RMF | Calculated | | Calculated | | | |
| RM @ MRT | 0.522 @ 208 | | 0.034 @ 208 | | @ | @ |
| Maximum Recorded Temperatures | 208 degF | | | | | |
| Circulation Stopped | 2-Dec-2009 | | | | 3:00 | |
| ogger On Bottom | 2-Dec-2009 | | | | 11:24 | |
| Unit Number | Location | | | | | |
| Recorded By | Jared R. Hoskins | | | | | |
| Witnessed By | Marvin Hackworth & Mark Scannelljo | | | | | |

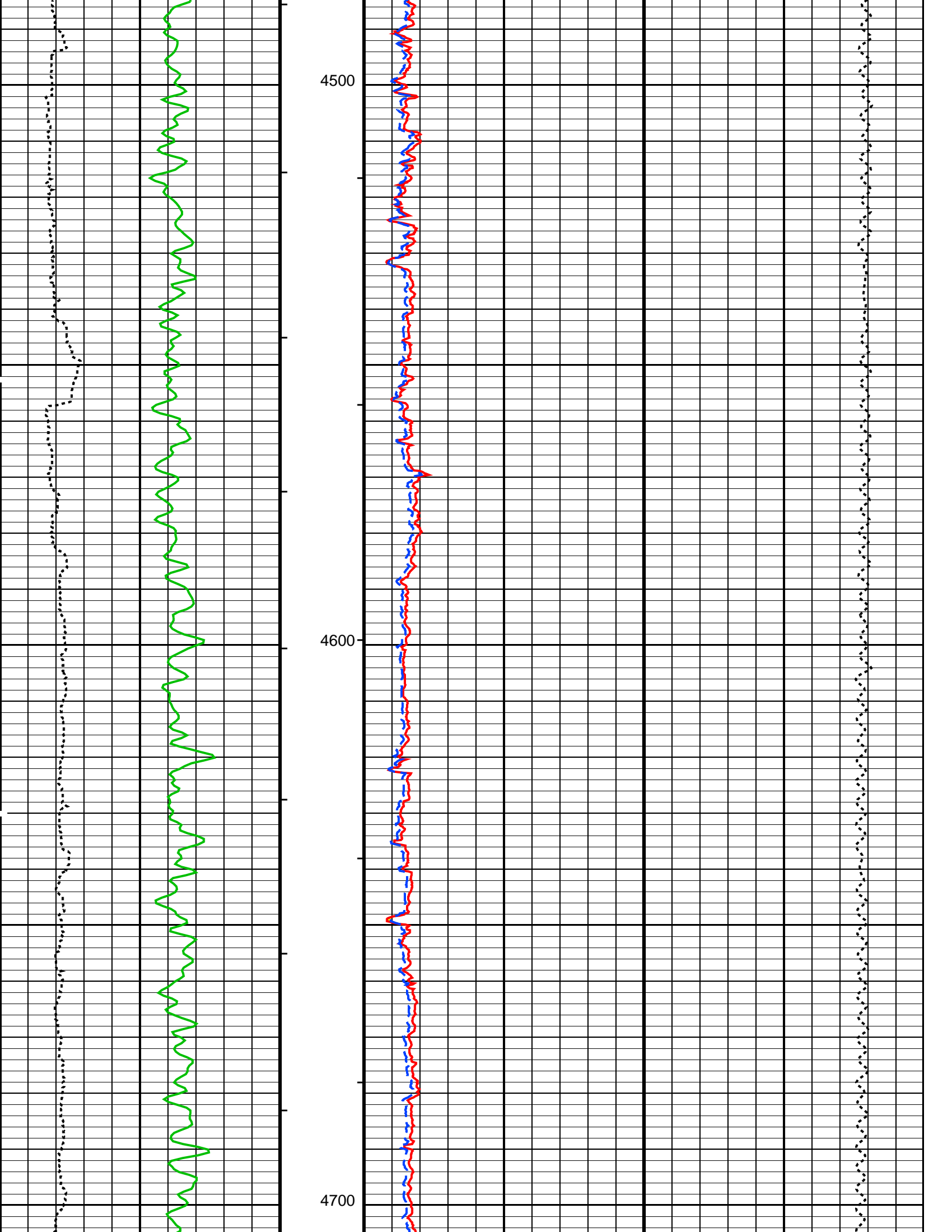
| | | | |
|-------------------------------|-----------|---|---|
| Logging Date | | | |
| Run Number | | | |
| Depth Driller | | | |
| Schlumberger Depth | | | |
| Bottom Log Interval | | | |
| Top Log Interval | | | |
| Casing Driller Size @ Depth | @ | | |
| Casing Schlumberger | | | |
| Bit Size | | | |
| Type Fluid In Hole | | | |
| Density | Viscosity | | |
| Fluid Loss | PH | | |
| Source Of Sample | | | |
| RM @ Measured Temperature | | @ | |
| RMF @ Measured Temperature | | @ | |
| RMC @ Measured Temperature | | @ | |
| Source RMF | RMC | | |
| RM @ MRT | RMF @ MRT | @ | @ |
| Maximum Recorded Temperatures | | | |
| Circulation Stopped | Time | | |
| Logger On Bottom | Time | | |
| Unit Number | Location | | |
| Recorded By | | | |
| Witnessed By | | | |

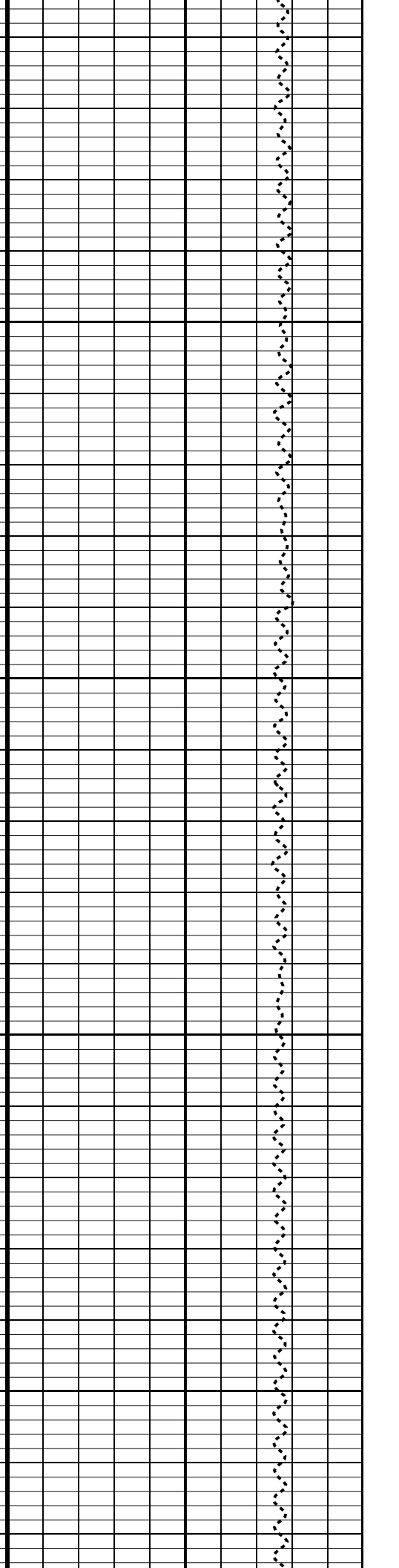
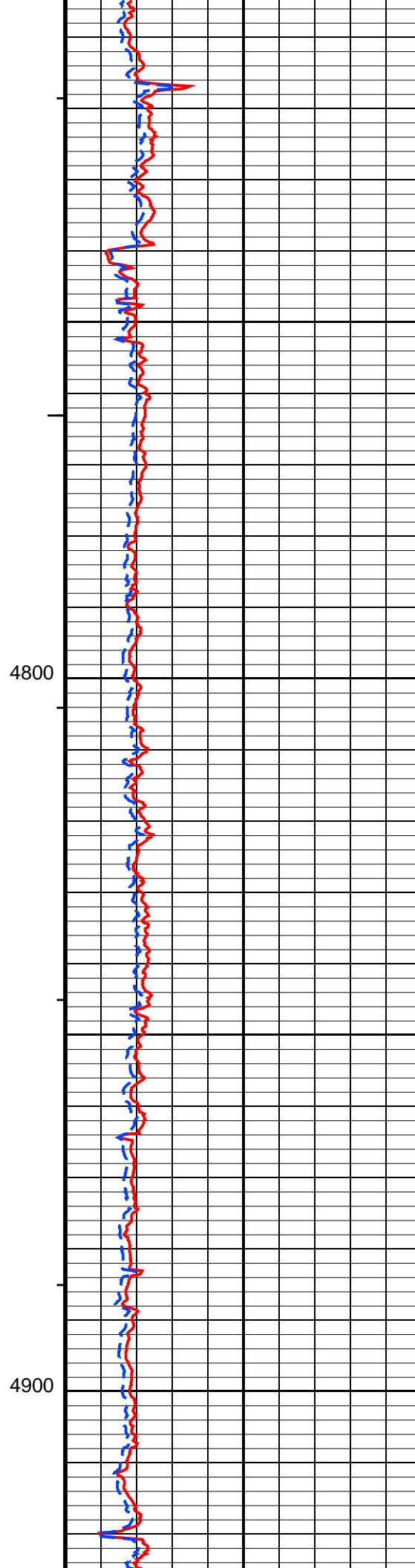
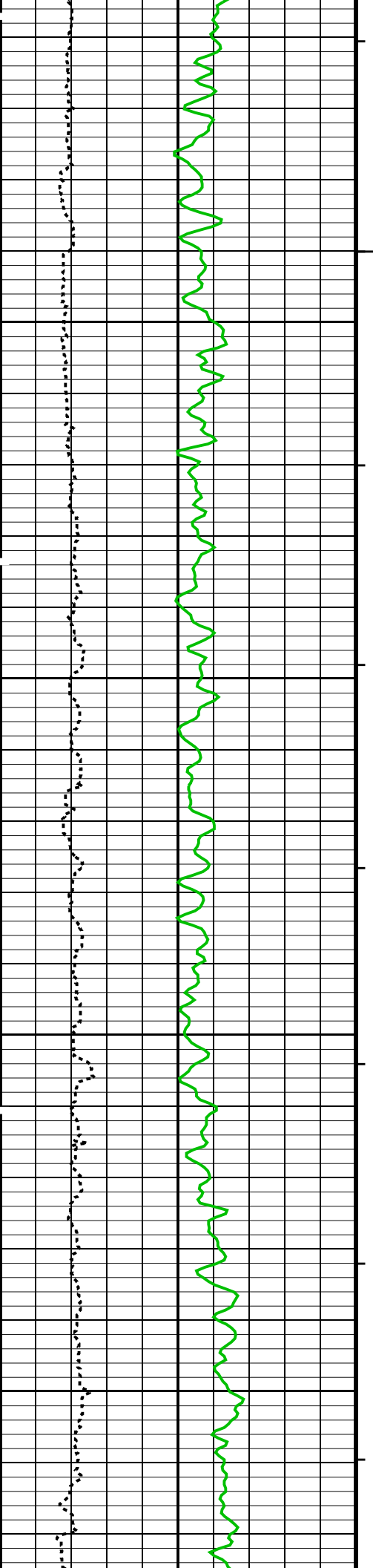


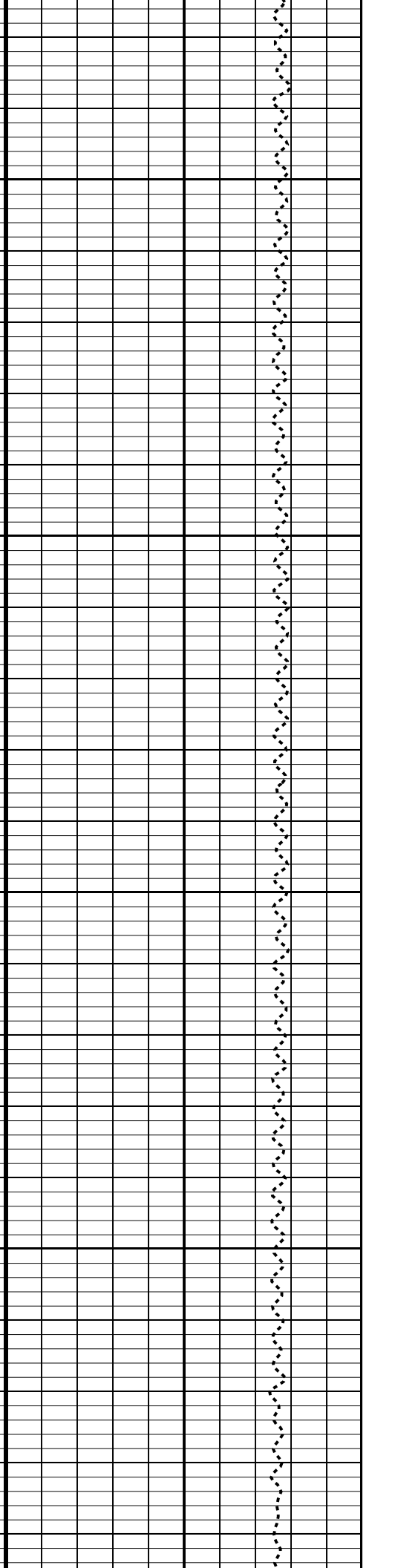
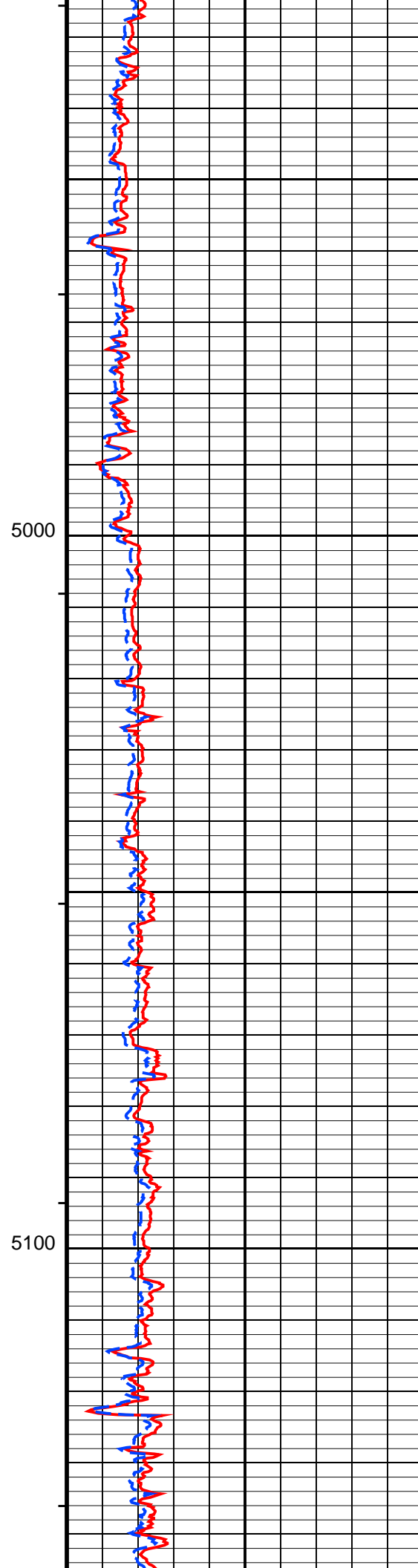
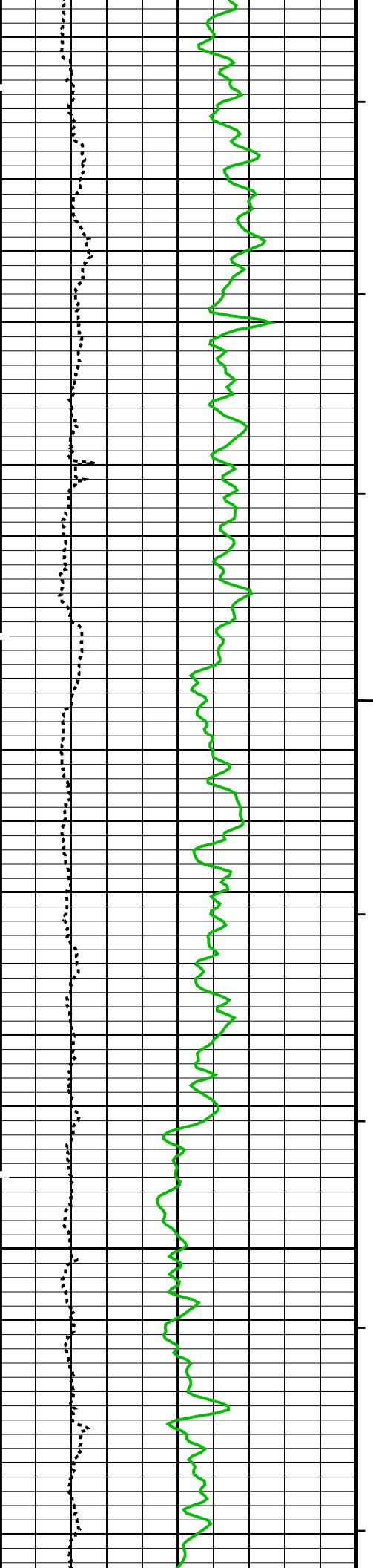
| Production String | (in) | | (ft) | Well Schematic | (ft) | (in) | | Casing String |
|-------------------|------|----|------|----------------|--------|-------|----|------------------|
| | OD | ID | MD | | MD | OD | ID | |
| | | | | | 0.0 | 8.625 | | Casing String |
| | | | | | 1220.0 | 8.625 | | Casing Shoe |
| | | | | | 1220.0 | 7.875 | | Borehole Segment |

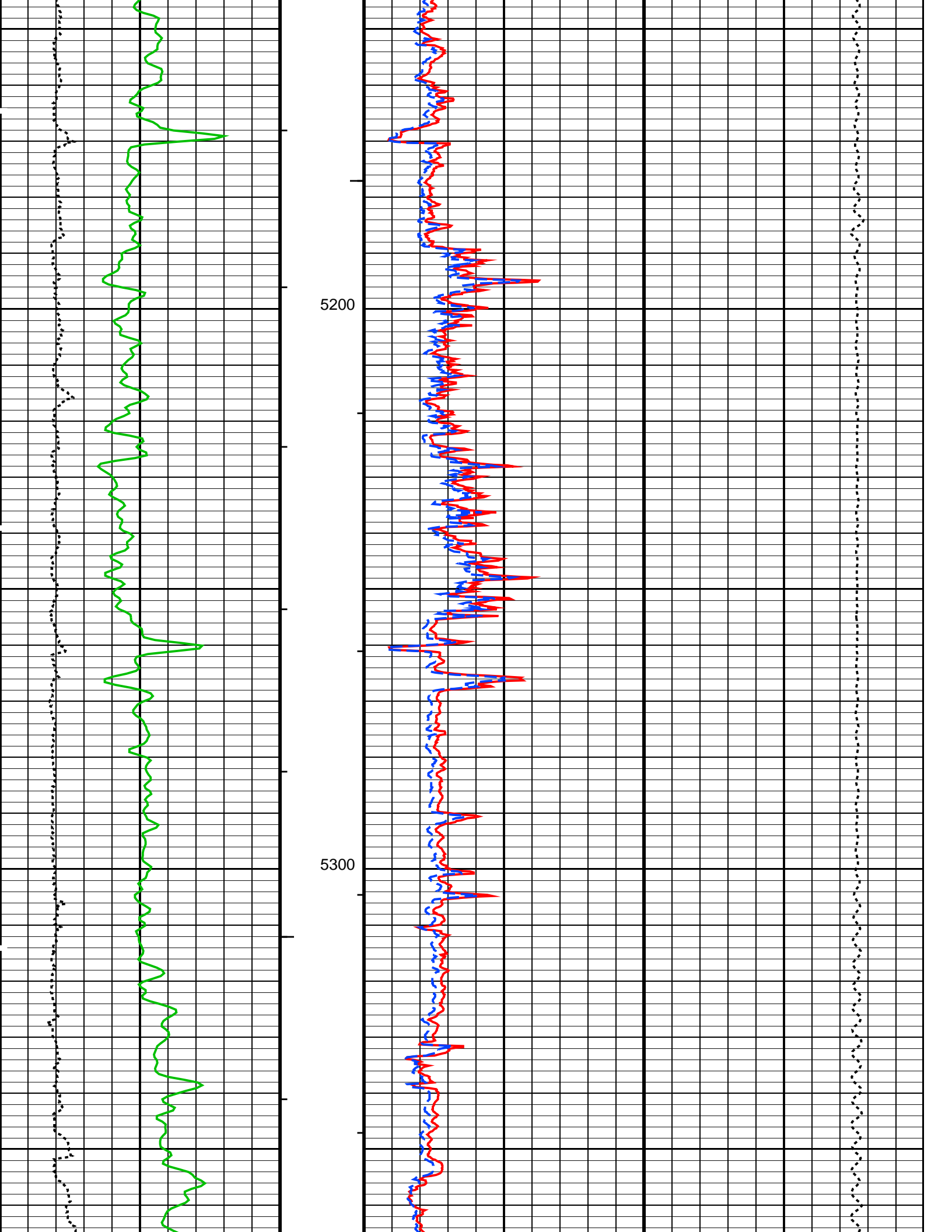


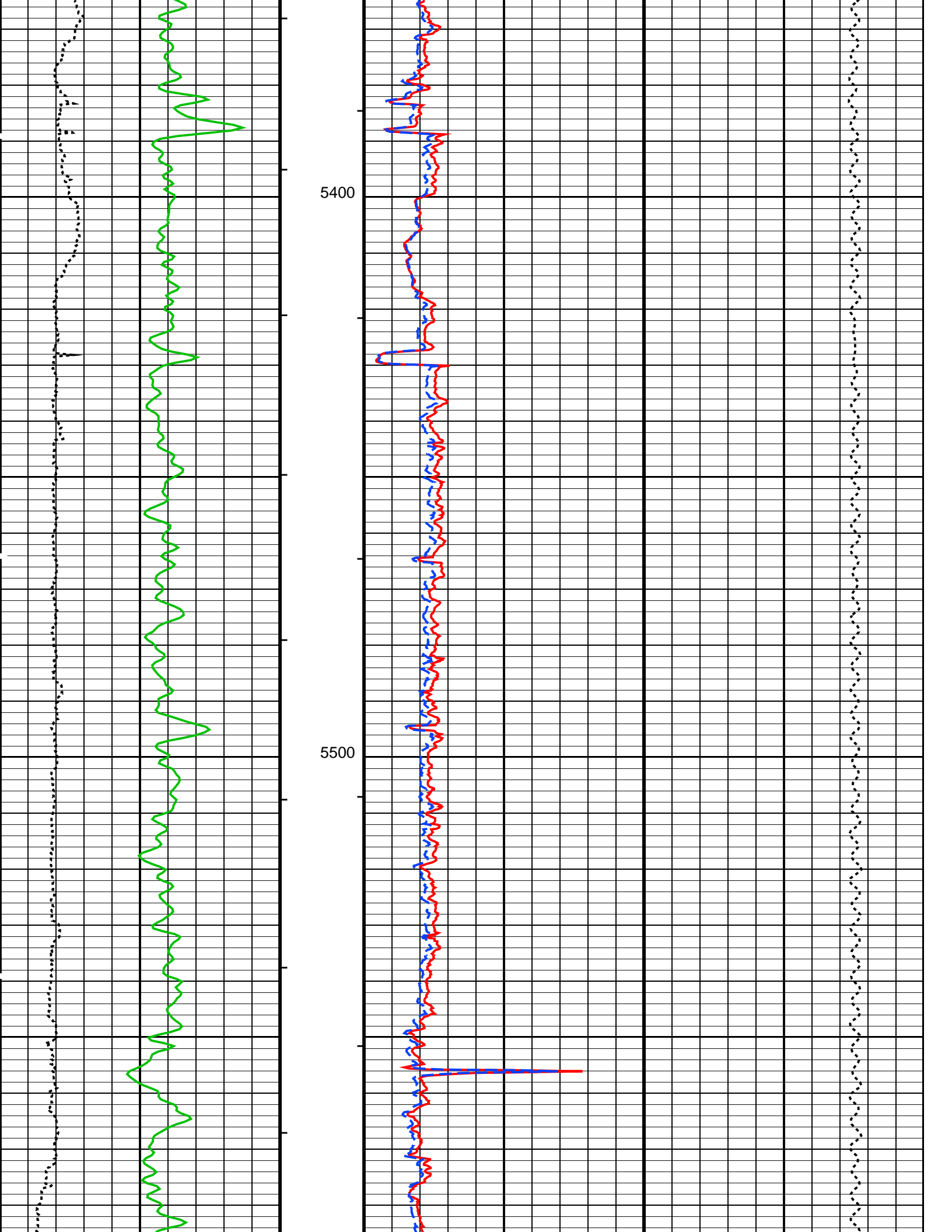


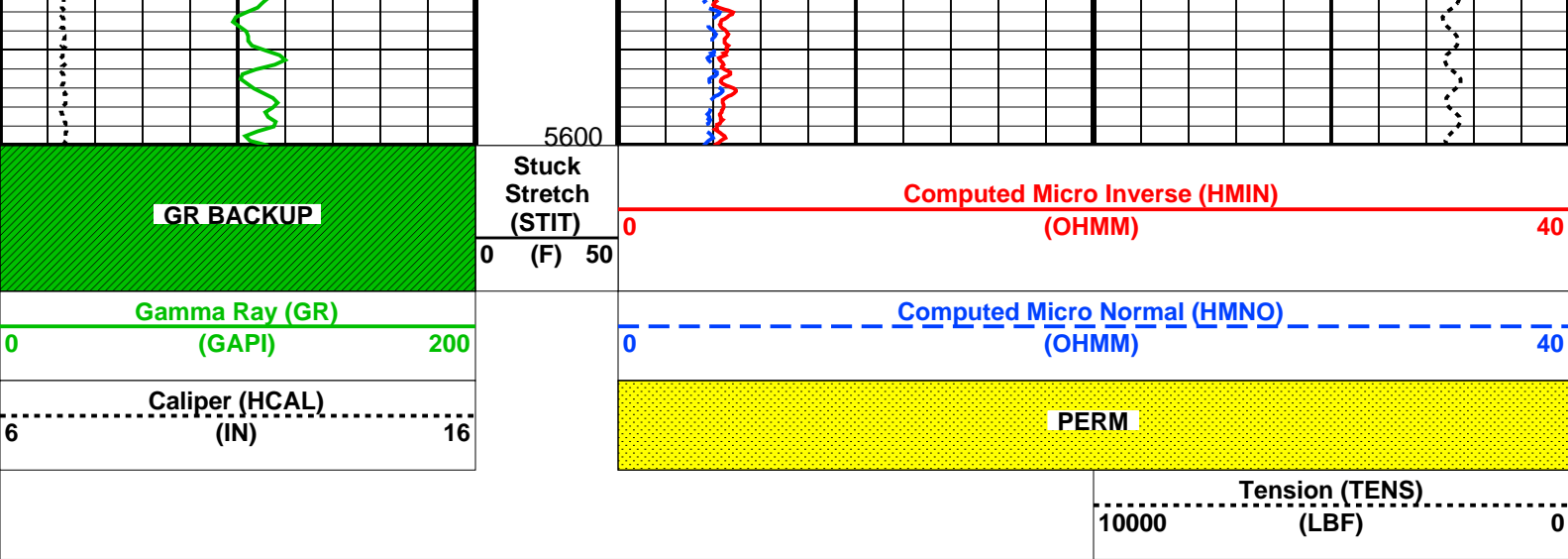












PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
 - └ Integrated Cement Volume Minor Pip Every 10 F3
 - └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

| Parameters | | | |
|--------------------------|---|-------------|------------|
| DLIS Name | | Description | Value |
| MPOF | HILTB–FTB: High resolution Integrated Logging Tool–DTS MCFL Processing Operation Mode | | ON |
| | STI: Stuck Tool Indicator | | |
| STKT | STI Stuck Threshold | | 2.500 ft |
| TDD | Total Depth – Driller | | 88870.0 ft |
| TDL | Total Depth – Logger | | 88870.0 ft |
| System and Miscellaneous | | | |
| BS | Bit Size | | 7.875 in |

Format: UPPER_MLT Vertical Scale: 5" per 100' Graphics File Created: 02-Dec-2009 12:23

| OP System Version: 17C0-154 | | | |
|-----------------------------|----------|-------|----------|
| AITM | 17C0-154 | HILTD | 17C0-154 |
| DTCH | 17C0-154 | | |

| Input DLIS Files | | | | | | |
|------------------|-------------------------|------|----------|-------------------|-----------|--------|
| DEFAULT | AIT_TLD_MCFL_CNL_010LUP | FN:9 | PRODUCER | 02-Dec-2009 11:46 | 8808.0 FT | 0.0 FT |

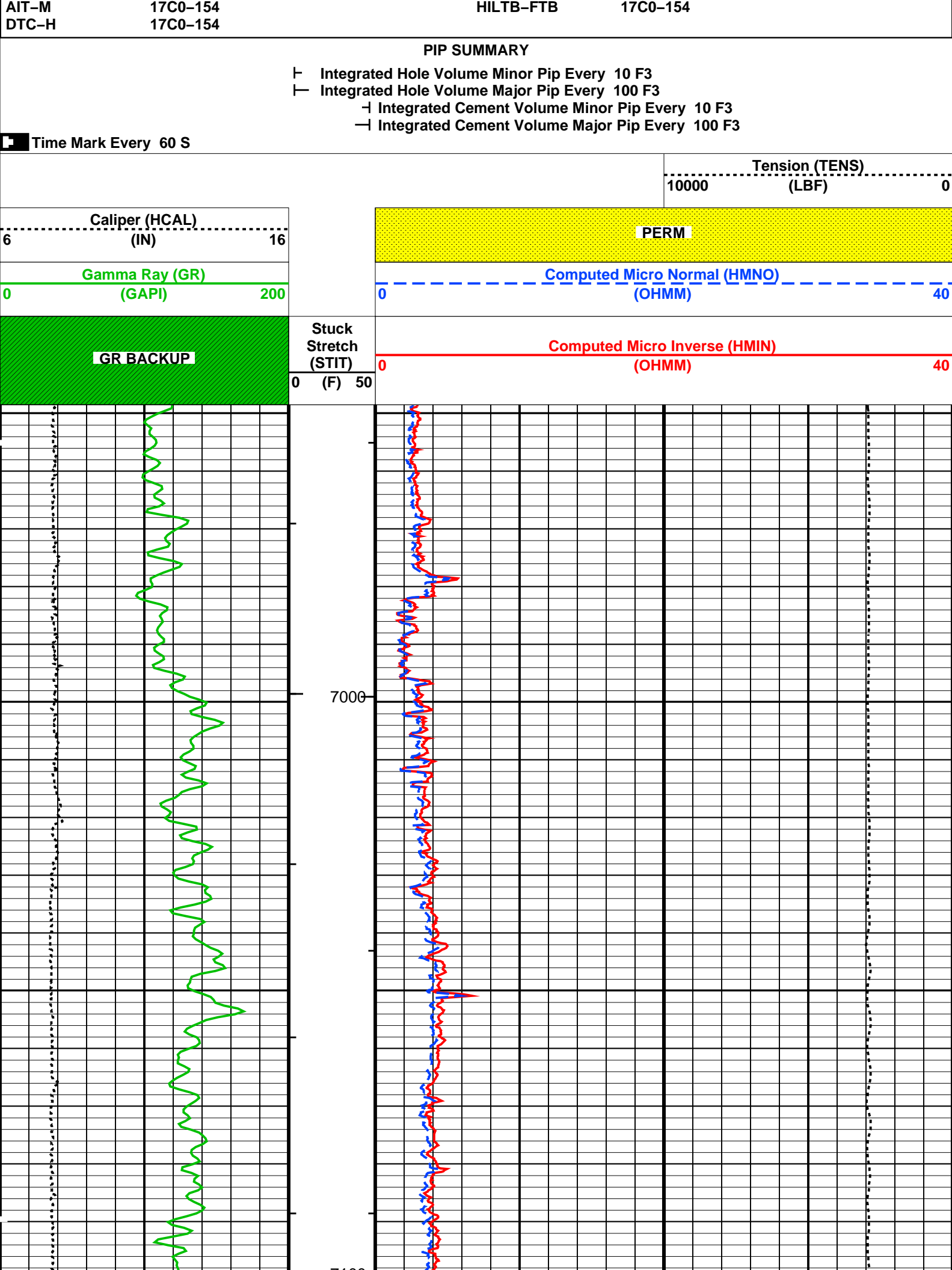


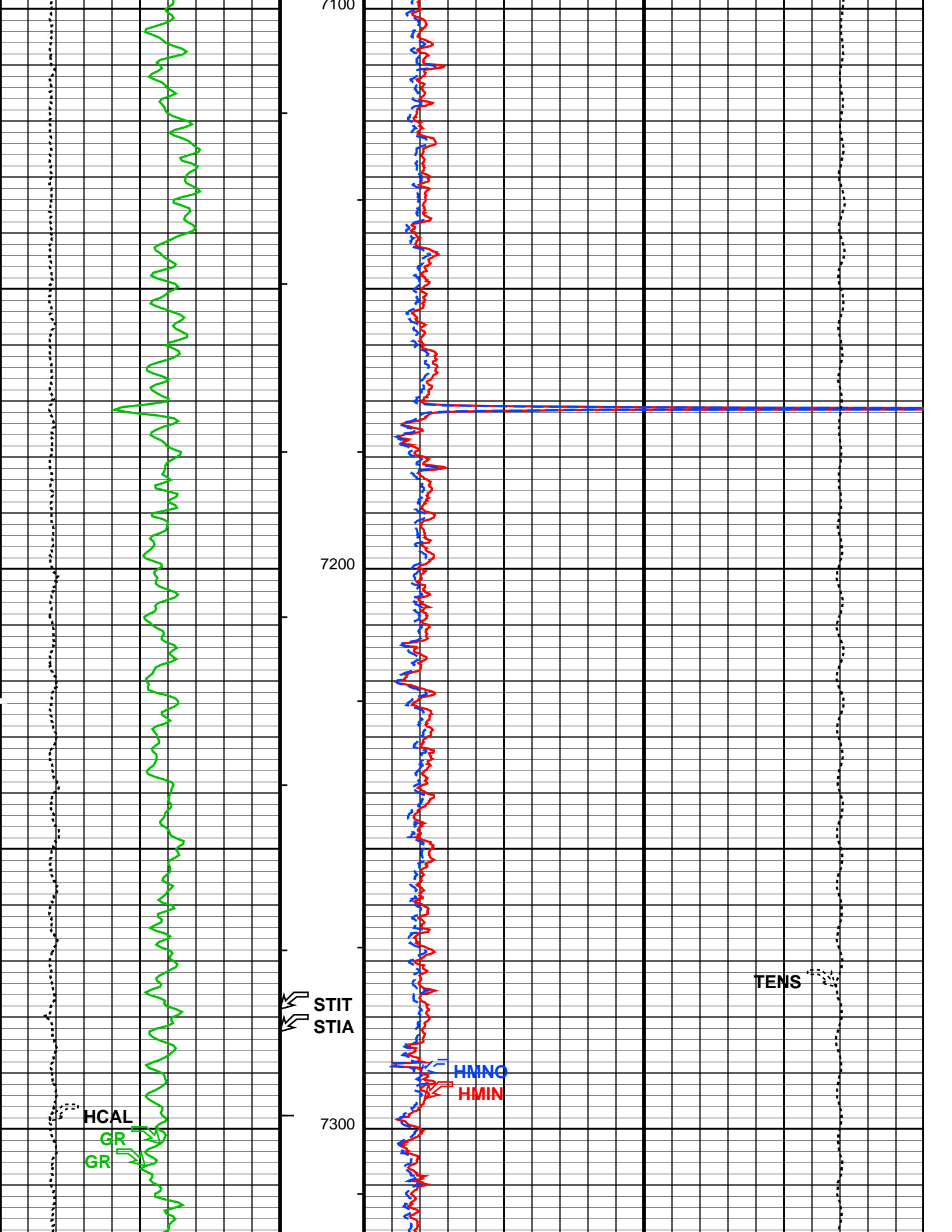
MAIN MICROLOG 5" = 100'

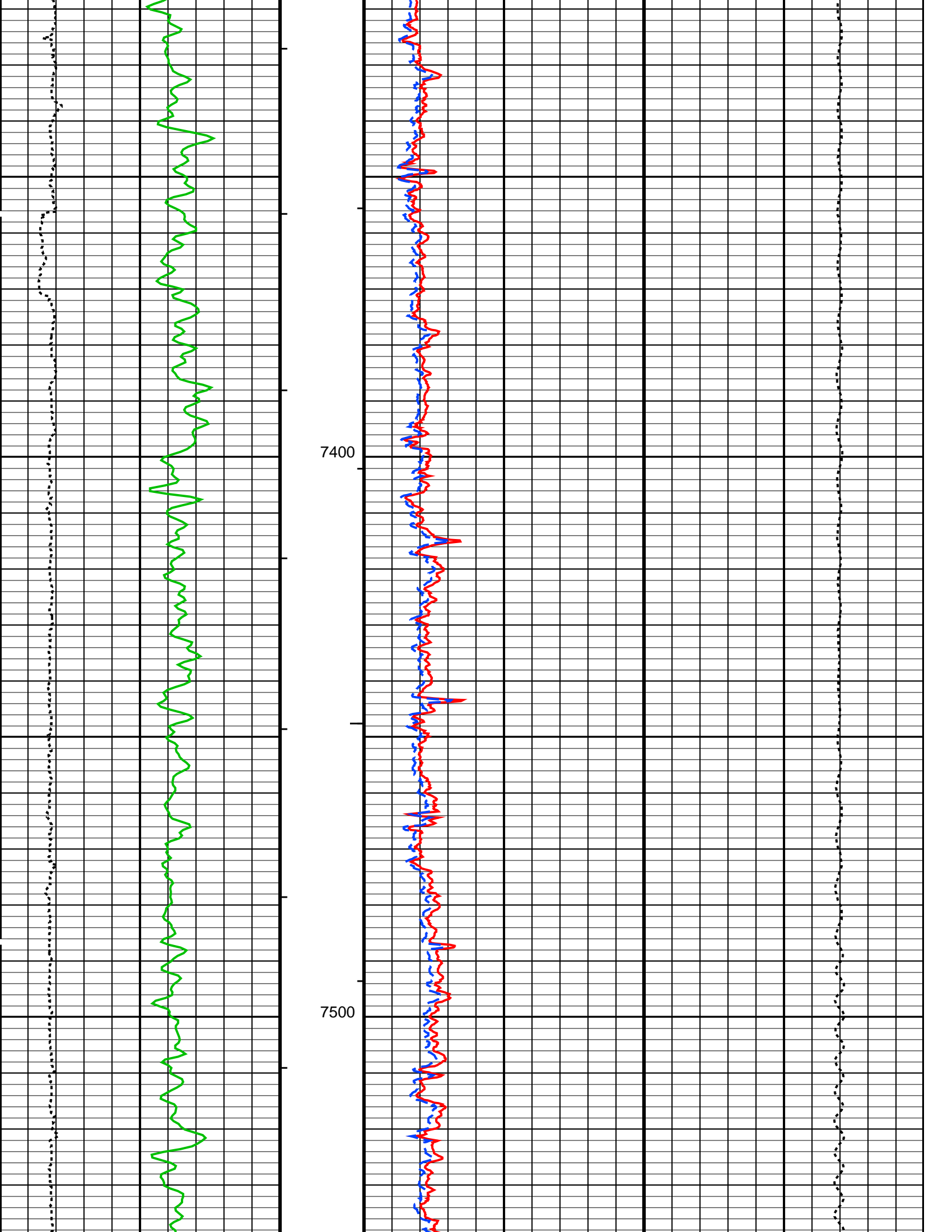
MAXIS Field Log

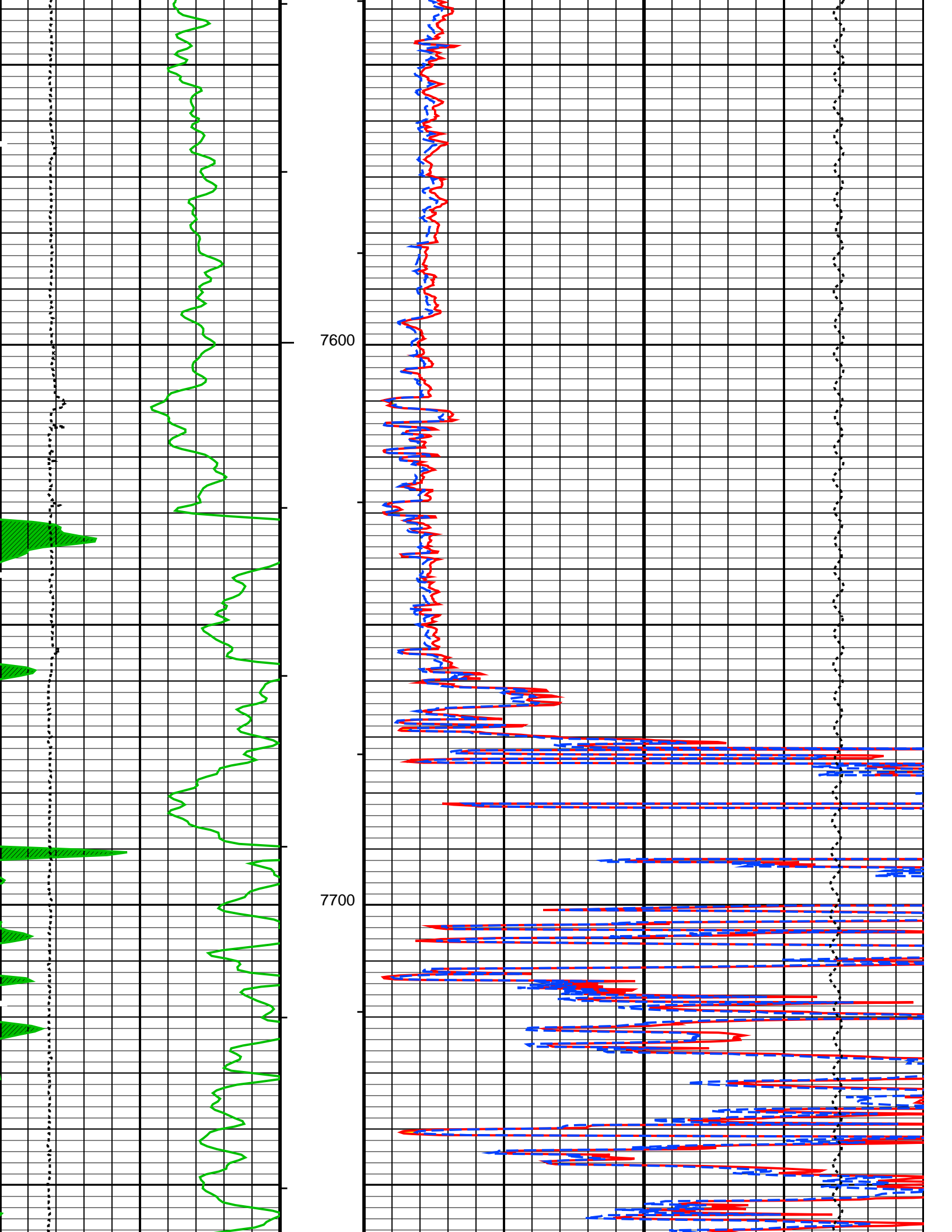
| Output DLIS Files | | | | | |
|-------------------|-------------------------|------|----------|-------------------|--|
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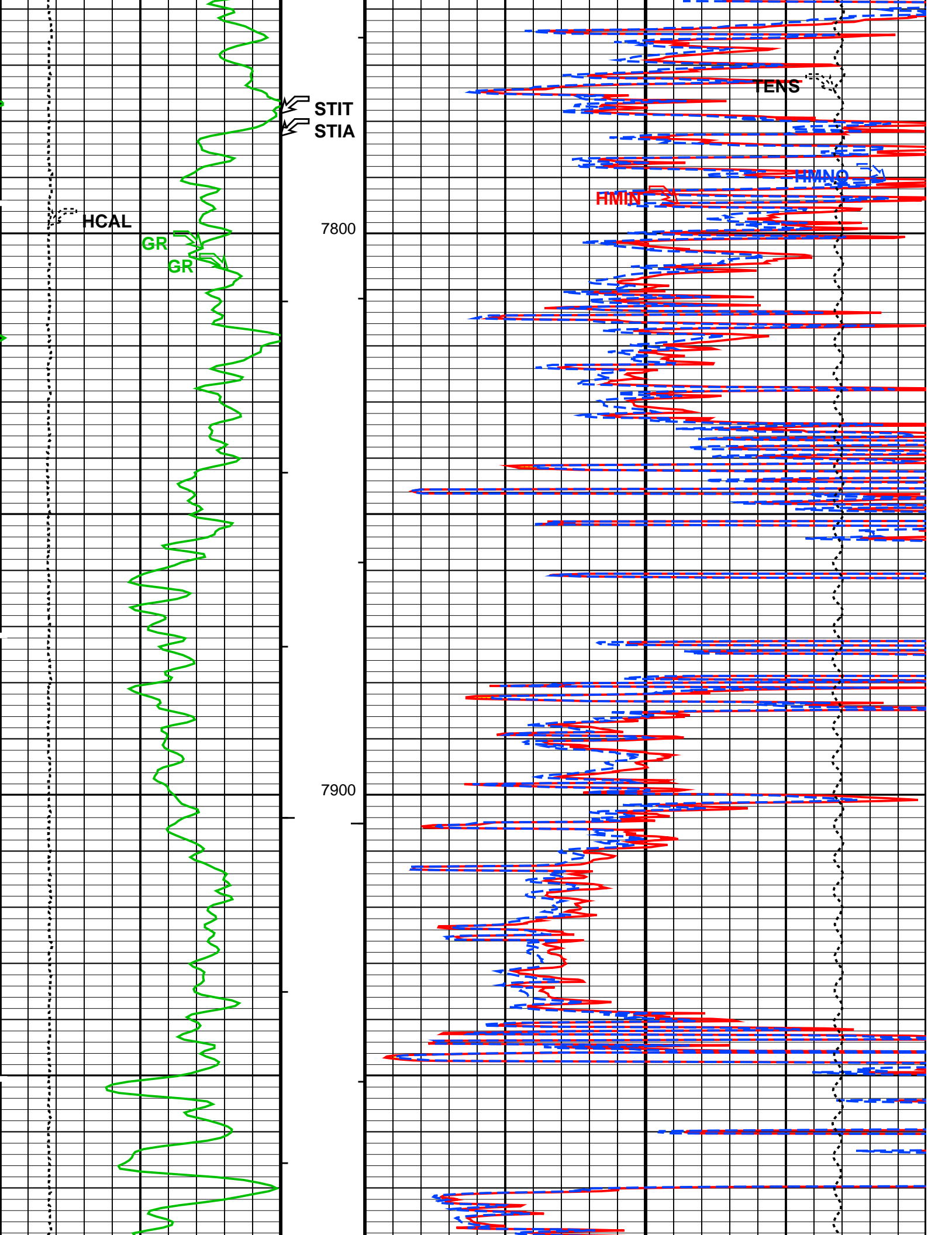
| OP System Version: 17C0-154 | | | | | |
|-----------------------------|--|--|--|--|--|
|-----------------------------|--|--|--|--|--|

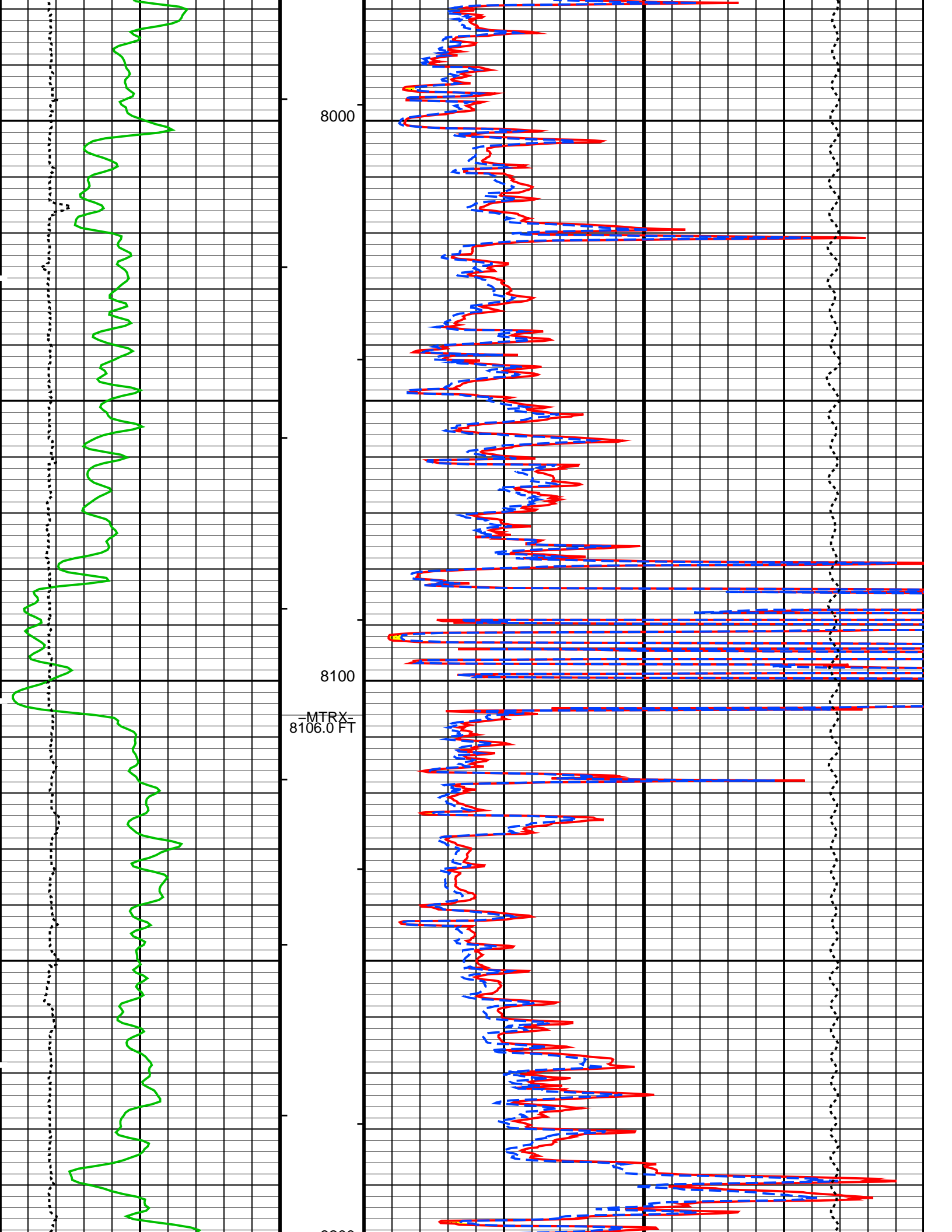


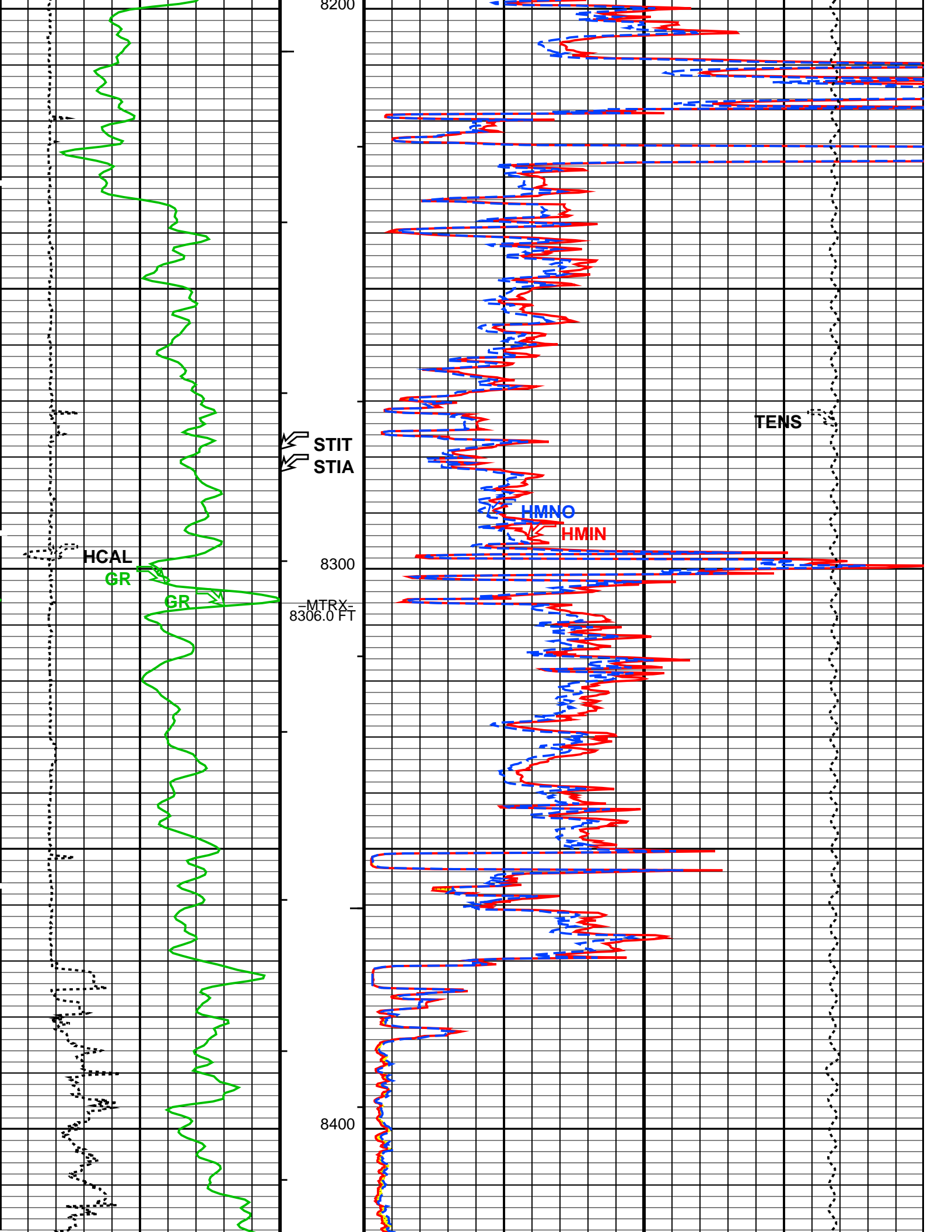


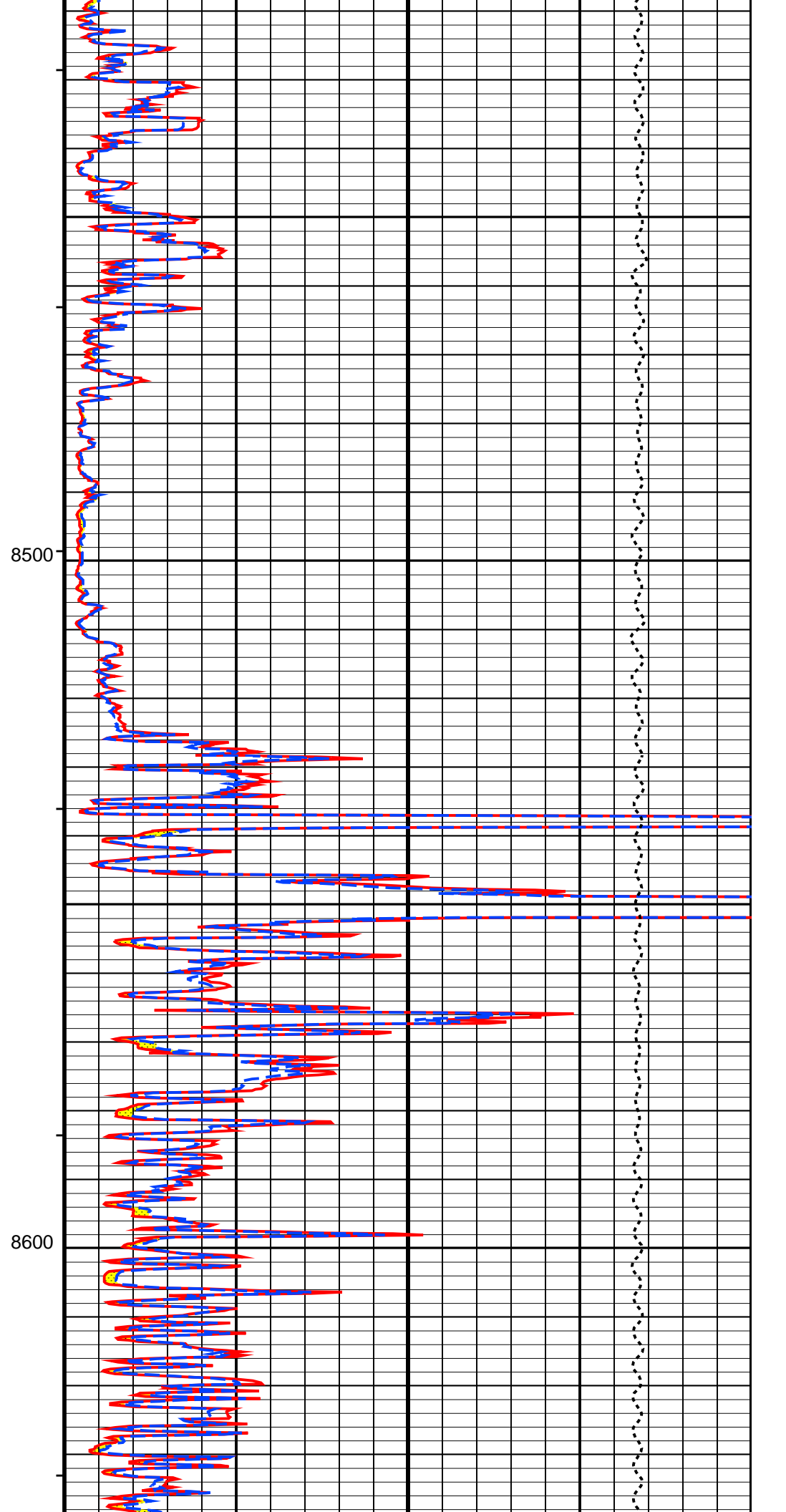
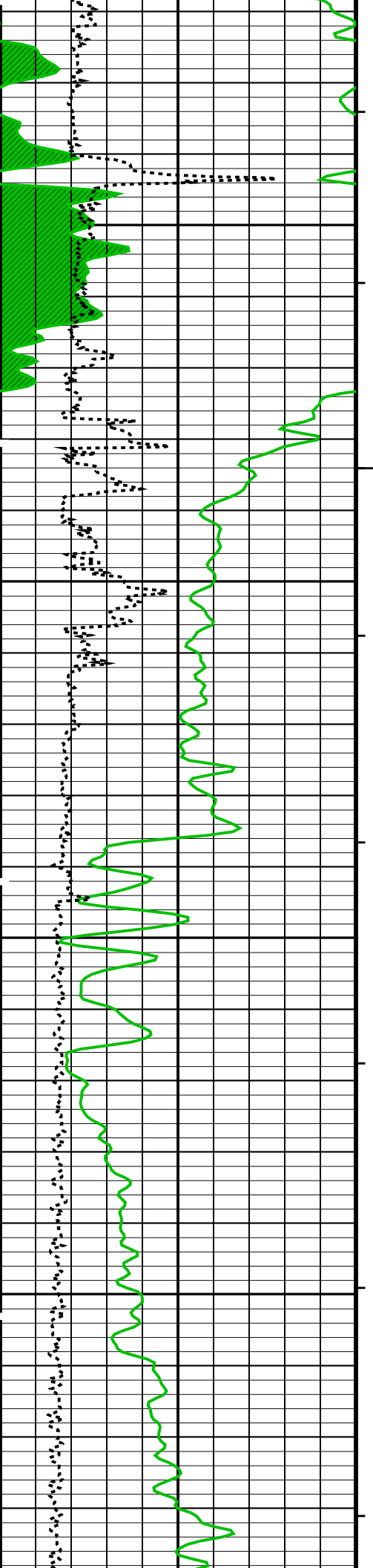


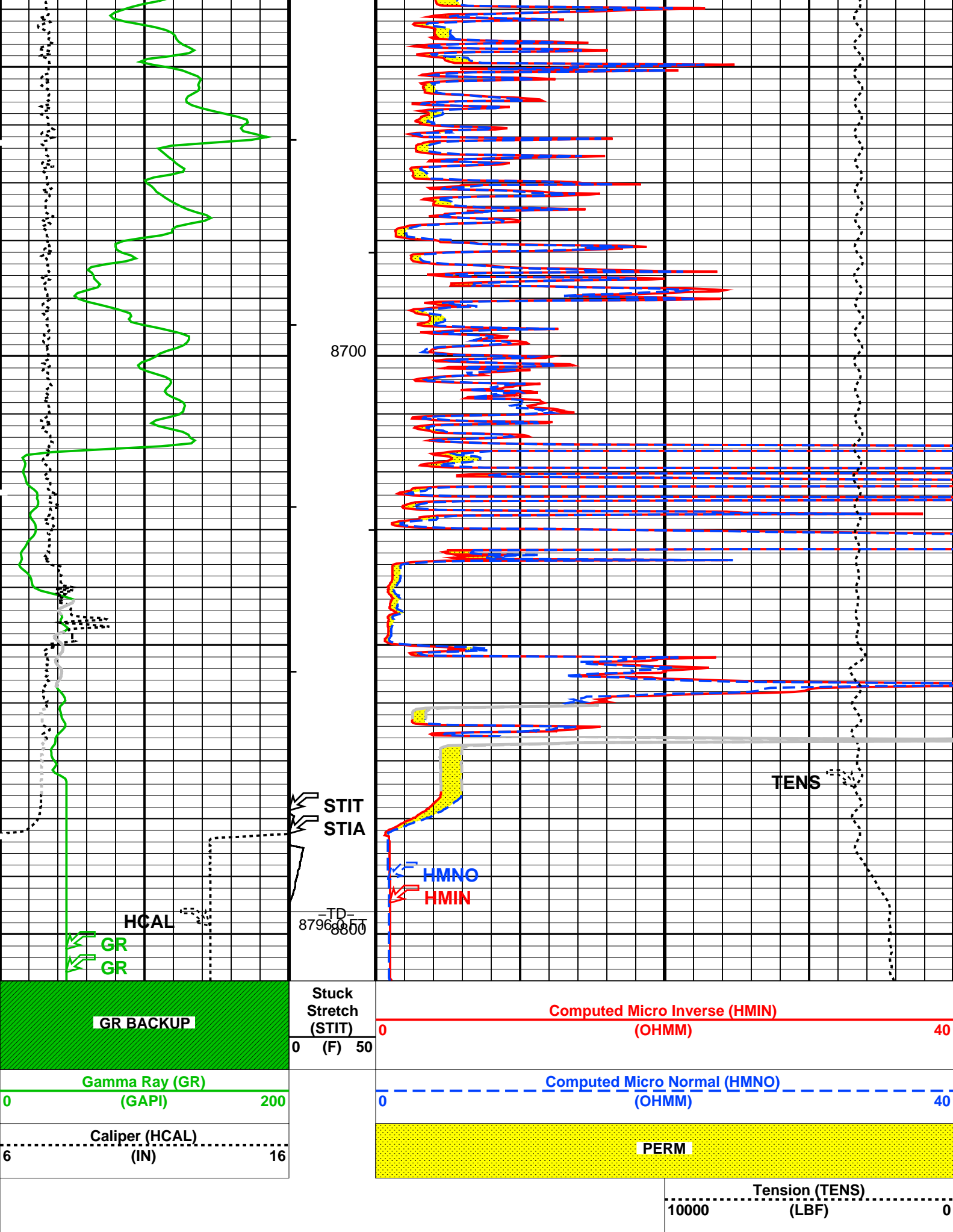






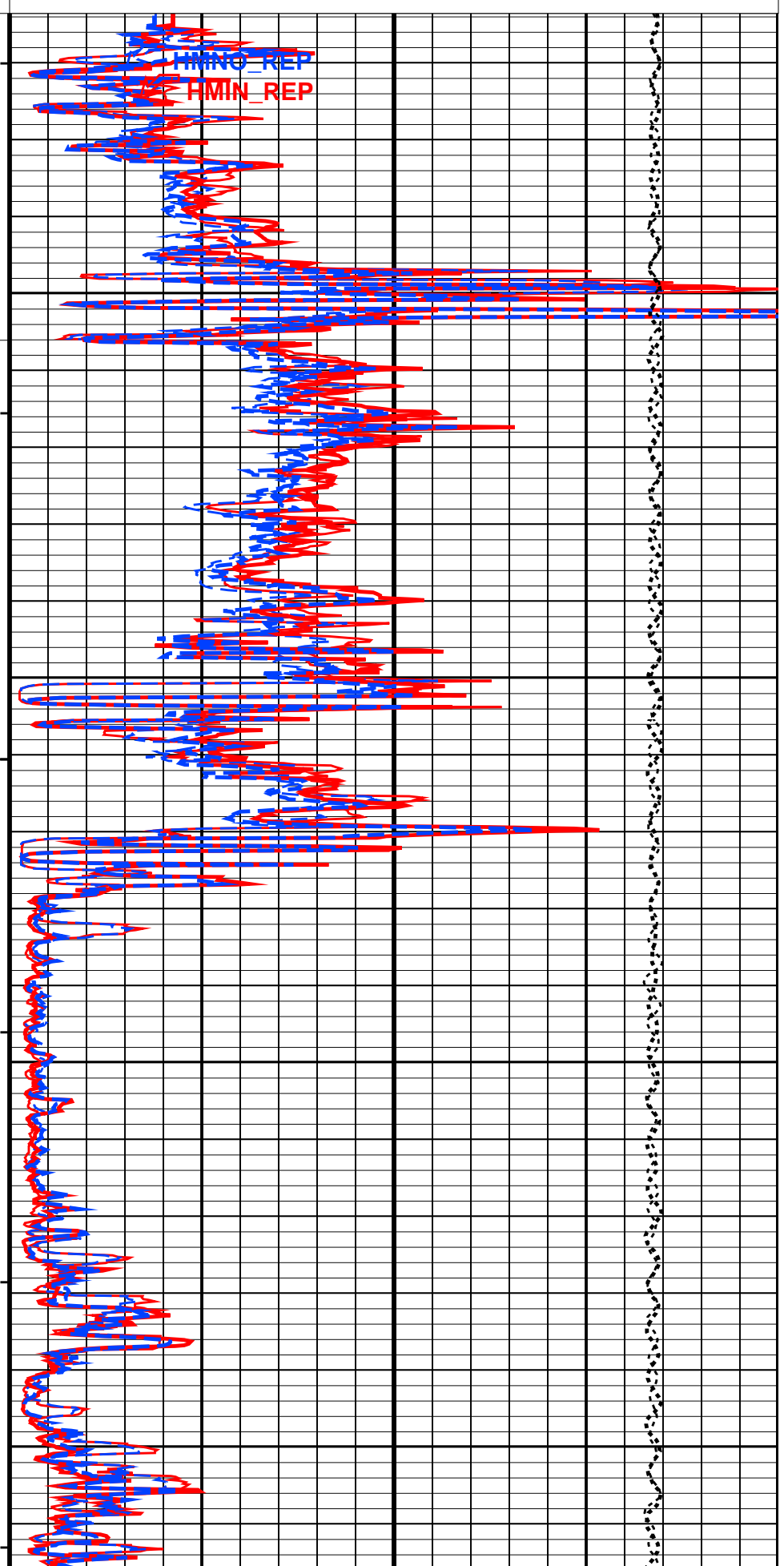
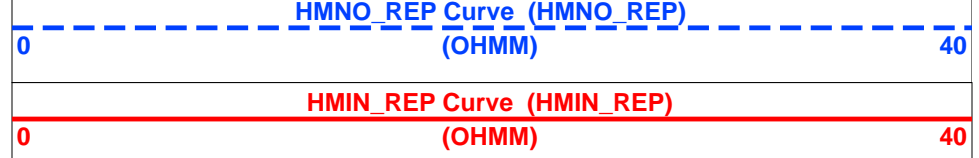
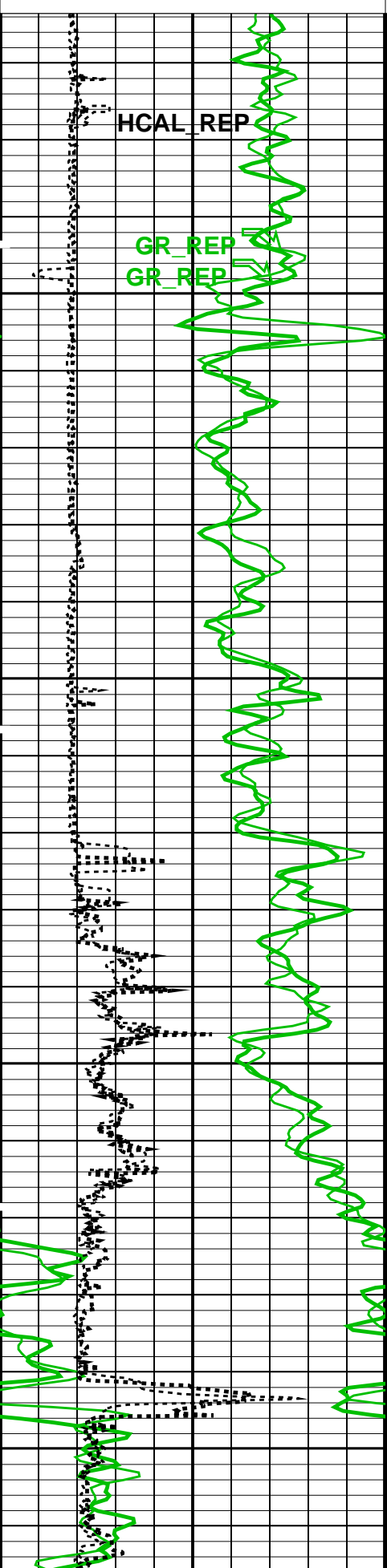
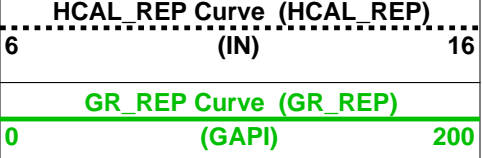






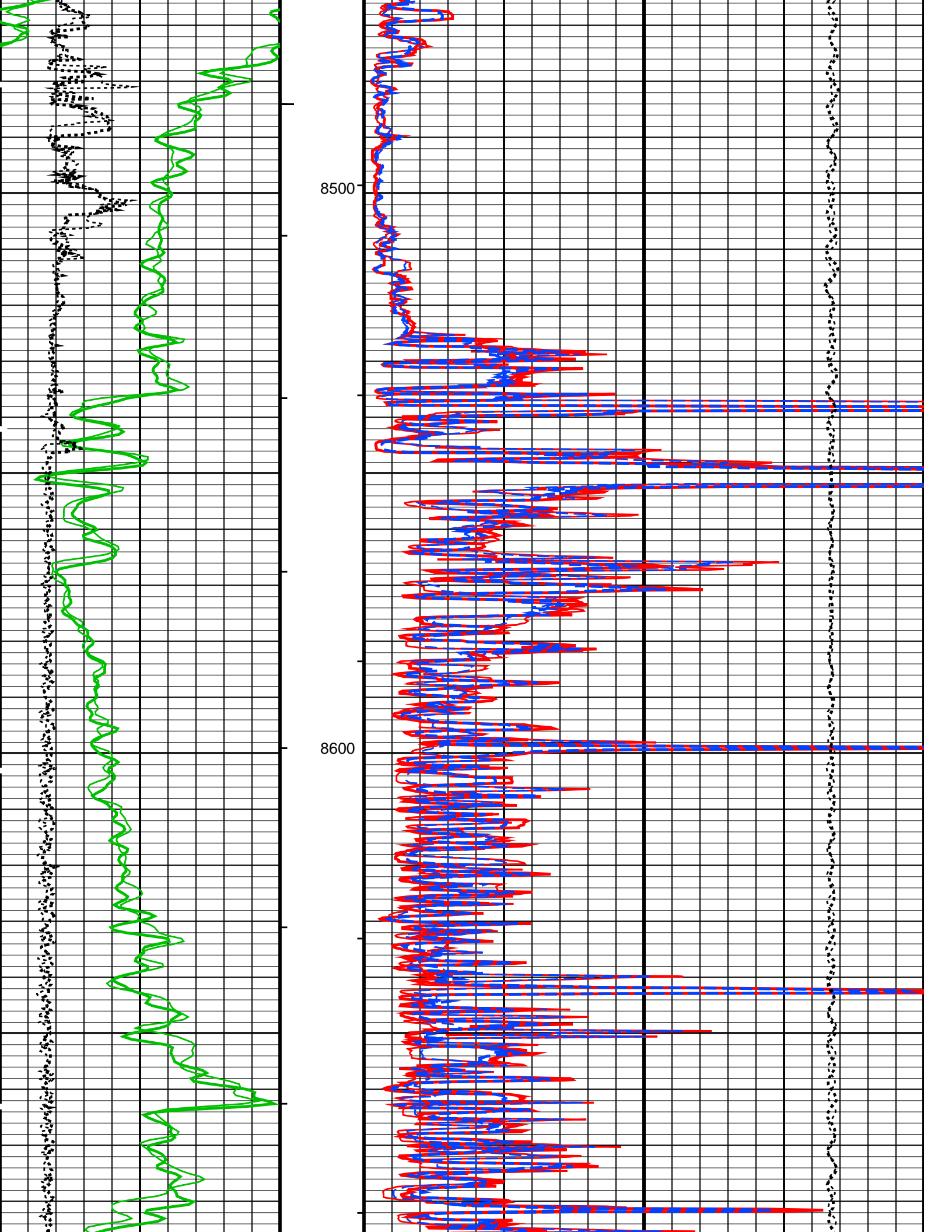
PIP SUMMARY

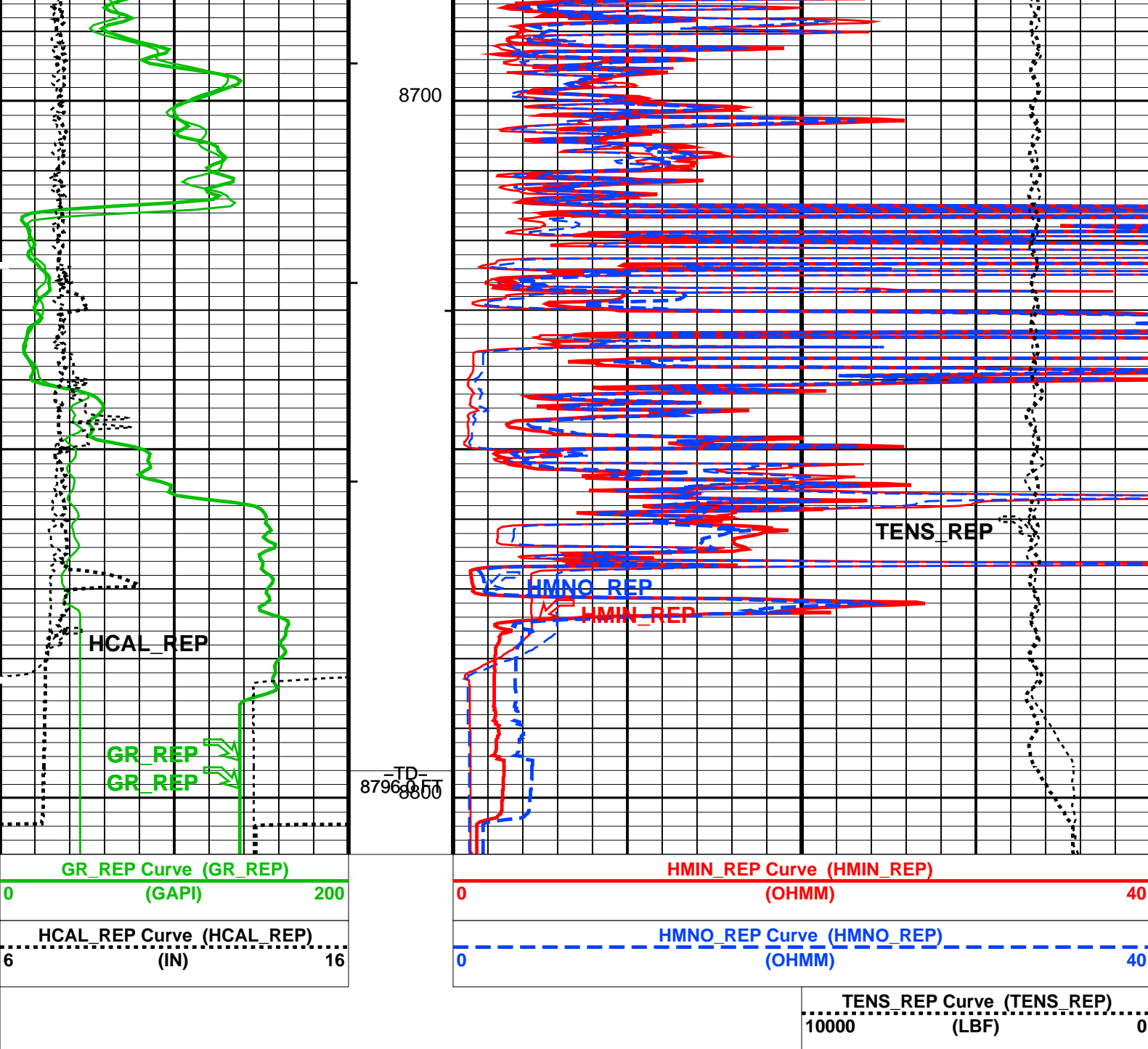
Integrated Hole Volume Minor Pip Every 10 F3



8300
-MTRX-
8306.0 FT

8400





PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters

| DLIS Name | Description | Value |
|--------------------------|--|----------|
| MPOF | HILTB-FTB: High resolution Integrated Logging Tool-DTS MCFL Processing Operation Mode | ON |
| FCD | HOLEV: Integrated Hole/Cement Volume | |
| HVCS | Future Casing (Outer) Diameter | 4.5 IN |
| | Integrated Hole Volume Caliper Selection | HCAL |
| System and Miscellaneous | | |
| BS | Bit Size | 7.875 IN |
| DORL | Depth Offset for Repeat Analysis | 0.0 FT |
| TD | Total Depth | 88870 FT |

Format: MLT_REP Vertical Scale: 5" per 100'

Graphics File Created: 02-Dec-2009 11:46

| Input DLIS Files | | | | | | |
|-------------------|-------------------------|------|----------|-------------------|-----------|-----------|
| DEFAULT | AIT_TLD_MCFL_CNL_009PUP | FN:8 | PRODUCER | 02-Dec-2009 11:43 | 8821.5 FT | 8263.5 FT |
| Output DLIS Files | | | | | | |
| DEFAULT | AIT_TLD_MCFL_CNL_010LUP | FN:9 | PRODUCER | 02-Dec-2009 11:46 | | |

Schlumberger

BEFORE CALIBRATIONS

MAXIS Field Log

| Calibration and Check Summary | | | | | | | |
|---|---------|-----------|-----------|-------|--------|-------|-------|
| Measurement | Nominal | Master | Before | After | Change | Limit | Units |
| Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase | | | | | | | |
| Master: 14-Oct-2009 17:03 Before: 30-Nov-2009 15:07 | | | | | | | |
| Thru Cal Magnitude – 0 | 0 | 0.6205 | 0.6203 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 1 | 0 | 1.271 | 1.271 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 2 | 0 | 0.6318 | 0.6316 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 3 | 0 | 0.7131 | 0.7129 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 4 | 0 | 1.334 | 1.334 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 5 | 0 | 1.953 | 1.952 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 6 | 0 | 1.949 | 1.948 | N/A | N/A | N/A | V |
| Thru Cal Magnitude – 7 | 0 | 1.419 | 1.418 | N/A | N/A | N/A | V |
| Thru Cal Phase – 0 | 0 | 180.2 | 180.2 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 1 | 0 | 179.2 | 179.1 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 2 | 0 | 175.6 | 175.5 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 3 | 0 | 174.9 | 174.8 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 4 | 0 | 168.7 | 168.6 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 5 | 0 | 167.0 | 166.9 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 6 | 0 | 167.0 | 167.0 | N/A | N/A | N/A | DEG |
| Thru Cal Phase – 7 | 0 | 166.2 | 166.2 | N/A | N/A | N/A | DEG |
| Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Auxiliary | | | | | | | |
| Master: 14-Oct-2009 17:03 Before: 30-Nov-2009 15:07 | | | | | | | |
| Array Induction SPA Plus | 991.0 | 992.7 | 992.7 | N/A | N/A | N/A | MV |
| Array Induction SPA Zero | 0 | 0.6638 | 0.6725 | N/A | N/A | N/A | MV |
| Array Induction Temperature PI | 0.9170 | 0.9196 | 0.9196 | N/A | N/A | N/A | V |
| Array Induction Temperature Ze | 0 | 0.0006632 | 0.0006608 | N/A | N/A | N/A | V |
| Array Induction Tool – M Wellsite Calibration – Test Loop Gain Correction | | | | | | | |
| Master: 14-Oct-2009 17:03 | | | | | | | |
| Test Loop Gain Correctio – 0 | 0 | 1.017 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 1 | 0 | 1.014 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 2 | 0 | 1.015 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 3 | 0 | 1.011 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 4 | 0 | 0.9935 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 5 | 0 | 0.9888 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 6 | 0 | 0.9937 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 7 | 0 | 1.007 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio – 0 | 0 | 0.7201 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 1 | 0 | 0.7620 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 2 | 0 | 0.2948 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 3 | 0 | 0.2209 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 4 | 0 | 0.1146 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 5 | 0 | -0.009143 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio – 6 | 0 | 0.2984 | N/A | N/A | N/A | N/A | DEG |

| | | | | | | | |
|--|--------|----------|--------|-----|-----|-------|------|
| Test Loop Gain Correction – 7 | 0 | –0.05307 | N/A | N/A | N/A | N/A | DEG |
| Array Induction Tool – M Wellsite Calibration – Sonde Error Correction | | | | | | | |
| Master: 14–Oct–2009 17:03 | | | | | | | |
| R Sonde Error Correction – 0 | 0 | –69.04 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 1 | 0 | 172.8 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 2 | 0 | 116.8 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 3 | 0 | 64.65 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 4 | 0 | 26.78 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 5 | 0 | 12.75 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 6 | 0 | 11.98 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction – 7 | 0 | –2.480 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 0 | 0 | –259.4 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 1 | 0 | 103.1 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 2 | 0 | 63.05 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 3 | 0 | –22.90 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 4 | 0 | 21.47 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 5 | 0 | –15.50 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 6 | 0 | –4.060 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction – 7 | 0 | –4.950 | N/A | N/A | N/A | N/A | MM/M |
| Array Induction Tool – M Wellsite Calibration – Mud Gain Correction | | | | | | | |
| Master: 14–Oct–2009 17:03 | | | | | | | |
| Coarse – Mag, Real, Imag – 0 | 0 | 0.8551 | N/A | N/A | N/A | N/A | |
| Coarse – Mag, Real, Imag – 1 | 0 | 0.8551 | N/A | N/A | N/A | N/A | |
| Coarse – Mag, Real, Imag – 2 | 0 | 0.8551 | N/A | N/A | N/A | N/A | |
| Fine – Mag, Real, Imag – 0 | 0 | 0.8573 | N/A | N/A | N/A | N/A | |
| Fine – Mag, Real, Imag – 1 | 0 | 0.8573 | N/A | N/A | N/A | N/A | |
| Fine – Mag, Real, Imag – 2 | 0 | 0.8573 | N/A | N/A | N/A | N/A | |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary | | | | | | | |
| Before: 30–Nov–2009 15:13 | | | | | | | |
| BS Window Ratio | 0.7387 | N/A | 0.7409 | N/A | N/A | N/A | |
| BS Window Sum | 10310 | N/A | 10330 | N/A | N/A | N/A | CPS |
| SS Window Ratio | 0.4771 | N/A | 0.4772 | N/A | N/A | N/A | |
| SS Window Sum | 10520 | N/A | 10520 | N/A | N/A | N/A | CPS |
| LS Window Ratio | 0.2960 | N/A | 0.2941 | N/A | N/A | N/A | |
| LS Window Sum | 1176 | N/A | 1172 | N/A | N/A | N/A | CPS |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations | | | | | | | |
| Before: 30–Nov–2009 15:13 | | | | | | | |
| BS PM High Voltage (Command) | 1473 | N/A | 1478 | N/A | N/A | N/A | V |
| SS PM High Voltage (Command) | 1598 | N/A | 1617 | N/A | N/A | N/A | V |
| LS PM High Voltage (Command) | 1349 | N/A | 1357 | N/A | N/A | N/A | V |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration | | | | | | | |
| Before: 30–Nov–2009 15:13 | | | | | | | |
| BS Crystal Resolution | 11.38 | N/A | 11.16 | N/A | N/A | N/A | % |
| SS Crystal Resolution | 10.38 | N/A | 10.45 | N/A | N/A | N/A | % |
| LS Crystal Resolution | 8.717 | N/A | 8.654 | N/A | N/A | N/A | % |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration | | | | | | | |
| Before: 30–Nov–2009 15:08 | | | | | | | |
| Raw B0 Resistivity | 3875 | N/A | 3832 | N/A | N/A | N/A | OHMM |
| Raw B1 Resistivity | 3830 | N/A | 3792 | N/A | N/A | N/A | OHMM |
| Raw B2 Resistivity | 3830 | N/A | 3797 | N/A | N/A | N/A | OHMM |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration | | | | | | | |
| Before: 30–Nov–2009 15:06 | | | | | | | |
| HILT Caliper Zero Measurement | 8.000 | N/A | 7.815 | N/A | N/A | N/A | IN |
| HILT Caliper Plus Measurement | 12.00 | N/A | 11.89 | N/A | N/A | N/A | IN |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration | | | | | | | |
| Before: 30–Nov–2009 15:06 | | | | | | | |
| Gamma Ray Background | 30.00 | N/A | 77.42 | N/A | N/A | N/A | GAPI |
| Gamma Ray (Jig – Bkg) | 175.8 | N/A | 175.8 | N/A | N/A | 15.98 | GAPI |
| Gamma Ray (Calibrated) | 165.0 | N/A | 165.0 | N/A | N/A | 15.00 | GAPI |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement | | | | | | | |
| Master: 8–Oct–2009 13:16 Before: 30–Nov–2009 15:07 | | | | | | | |
| CNTC Background | 26.34 | 26.34 | 26.99 | N/A | N/A | 3.951 | CPS |
| CFTC Background | 27.85 | 27.85 | 28.31 | N/A | N/A | 4.178 | CPS |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement | | | | | | | |
| Master: 8–Oct–2009 13:16 | | | | | | | |
| Thermal Near Corr. (Tank) | 5800 | 5423 | N/A | N/A | N/A | N/A | CPS |
| Thermal Far Corr. (Tank) | 2400 | 2272 | N/A | N/A | N/A | N/A | CPS |
| CNTC/CFTC (Tank) | 2.159 | 2.387 | N/A | N/A | N/A | N/A | |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration | | | | | | | |
| Before: 2–Dec–2009 11:03 | | | | | | | |

Z-Axis Acceleration 32.19 N/A 32.02 N/A N/A N/A F/S2

High resolution Integrated Logging Tool-DTS Master Calibration – Inversion results

Master: 29-Nov-2009 14:51

| | | | | | | | |
|---------------|-------|-------|----|----|----|----|------|
| Rho Aluminum | 2.596 | 2.602 | -- | -- | -- | -- | G/C3 |
| Rho Magnesium | 1.686 | 1.687 | -- | -- | -- | -- | G/C3 |
| Pe Aluminum | 2.570 | 2.559 | -- | -- | -- | -- | |
| Pe Magnesium | 2.650 | 2.623 | -- | -- | -- | -- | |

High resolution Integrated Logging Tool-DTS Master Calibration – Deviation Summary

Master: 29-Nov-2009 14:51

| | | | | | | | |
|----------------------|---|--------|----|----|----|----|---|
| BS Average Deviation | 0 | 0.2941 | -- | -- | -- | -- | % |
| BS Max Deviation | 0 | 0.5746 | -- | -- | -- | -- | % |
| SS Average Deviation | 0 | 0.3866 | -- | -- | -- | -- | % |
| SS Max Deviation | 0 | 2.080 | -- | -- | -- | -- | % |
| LS Average Deviation | 0 | 0.9530 | -- | -- | -- | -- | % |
| LS Max Deviation | 0 | 2.032 | -- | -- | -- | -- | % |

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 57.0 DEGF.
Thermal Housing Size 3.365 IN.
NSR-F serial number 5068

Array Induction Tool – M / Equipment Identification

































Primary Equipment:
Rm/SP Bottom Nose
Array Induction Sonde

AMRM – A
AMIS – A 1372

Auxiliary Equipment:

Array Induction Tool – M Wellsite Calibration

Electronics Calibration Check – Thru Cal Mag. & Phase

| Idx | Phase | Value | Thru Cal Magnitude V | Nominal | Value | Thru Cal Phase DEG | Nominal |
|-----|--------|----------------------|---|----------------------|-------------------------|---|--------------------------|
| 0 | Master | 0.6205 |  | 0.6100 | 180.2 |  | 197.0 |
| | Before | 0.6203 |  | | 180.2 |  | |
| 1 | Master | 1.271 |  | 1.270 | 179.2 |  | 196.0 |
| | Before | 1.271 |  | | 179.1 |  | |
| 2 | Master | 0.6318 |  | 0.6200 | 175.6 |  | 192.0 |
| | Before | 0.6316 |  | | 175.5 |  | |
| 3 | Master | 0.7131 |  | 0.7000 | 174.9 |  | 191.0 |
| | Before | 0.7129 |  | | 174.8 |  | |
| 4 | Master | 1.334 |  | 1.340 | 168.7 |  | 185.0 |
| | Before | 1.334 |  | | 168.6 |  | |
| 5 | Master | 1.953 |  | 1.960 | 167.0 |  | 182.0 |
| | Before | 1.952 |  | | 166.9 |  | |
| 6 | Master | 1.949 |  | 1.960 | 167.0 |  | 181.0 |
| | Before | 1.948 |  | | 167.0 |  | |
| 7 | Master | 1.419 |  | 1.410 | 166.2 |  | 175.0 |
| | Before | 1.418 |  | | 166.2 |  | |
| | | 60.00 % (Minimum) | (Nominal) | 140.0 % (Maximum) | Nom -60.00 (Minimum) | (Nominal) | Nom + 60.00 (Maximum) |

Master: 14-Oct-2009 17:03

Before: 30-Nov-2009 15:07

Electronics Calibration Check – Auxiliary

| Electronics Calibration Check Summary | | | | | |
|--|------------------------------------|--------|--|------------------------------------|-----------|
| Phase | Array Induction SPA Plus MV | Value | Phase | Array Induction SPA Zero MV | Value |
| Master | | 992.7 | Master | | 0.6638 |
| Before | | 992.7 | Before | | 0.6725 |
| 941.0 (Minimum) 991.0 (Nominal) 1040 (Maximum) | | | -50.00 (Minimum) 0 (Nominal) 50.00 (Maximum) | | |
| Phase | Array Induction Temperature Plus V | Value | Phase | Array Induction Temperature Zero V | Value |
| Master | | 0.9196 | Master | | 0.0006632 |
| Before | | 0.9196 | Before | | 0.0006608 |
| 0.8710 (Minimum) 0.9170 (Nominal) 0.9630 (Maximum) | | | -0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum) | | |
| Master: 14-Oct-2009 17:03 | | | Before: 30-Nov-2009 15:07 | | |

| Array Induction Tool – M Wellsite Calibration | | | | | | | | |
|---|--------|---------------------------------------|--------------------|--------------------|-----------|-------------------------------------|----------------|--------------------|
| Test Loop Gain Correction | | | | | | | | |
| Idx | Value | Test Loop Gain Correction Magnitude V | | | Value | Test Loop Gain Correction Phase DEG | | |
| 0 | 1.017 | | | | 0.7201 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 1 | 1.014 | | | | 0.7620 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 2 | 1.015 | | | | 0.2948 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 3 | 1.011 | | | | 0.2209 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 4 | 0.9935 | | | | 0.1146 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 5 | 0.9888 | | | | -0.009143 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 6 | 0.9937 | | | | 0.2984 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 7 | 1.007 | | | | -0.05307 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| Master: 14-Oct-2009 17:03 | | | | | | | | |

| Array Induction Tool – M Wellsite Calibration | | | | | | | |
|---|--------|-------------------------------|---------------------|--------------------|--------|-------------------------------|--------------------------------------|
| Sonde Error Correction | | | | | | | |
| Idx | Value | R Sonde Error Correction MM/M | | | Value | X Sonde Error Correction MM/M | |
| 0 | -69.04 | | | | -259.4 | | |
| | | -231.0 (Minimum) | -56.00 (Nominal) | 119.0 (Maximum) | | -2250 (Minimum) | 0 (Nominal) 2250 (Maximum) |
| 1 | 172.8 | | | | 103.1 | | |
| | | 114.0 (Minimum) | 159.0 (Nominal) | 204.0 (Maximum) | | -625.0 (Minimum) | 0 (Nominal) 625.0 (Maximum) |
| 2 | 116.8 | | | | 63.05 | | |
| | | 66.00 (Minimum) | 111.0 (Nominal) | 156.0 (Maximum) | | -350.0 (Minimum) | 0 (Nominal) 350.0 (Maximum) |
| 3 | 64.65 | | | | -22.90 | | |
| | | 39.00 (Minimum) | 64.00 (Nominal) | 89.30 (Maximum) | | -250.0 (Minimum) | 0 (Nominal) 250.0 (Maximum) |
| 4 | 26.78 | | | | 21.47 | | |
| | | 15.00 (Minimum) | 25.00 (Nominal) | 35.00 (Maximum) | | -63.00 (Minimum) | 0 (Nominal) 63.00 (Maximum) |
| 5 | 12.75 | | | | -15.50 | | |
| | | 4.000 (Minimum) | 14.00 (Nominal) | 24.00 (Maximum) | | -50.00 (Minimum) | 0 (Nominal) 50.00 (Maximum) |
| 6 | 11.98 | | | | -4.060 | | |

| | | | | | | | |
|---|---------------------|--------------------|--------------------|--|---------------------|----------------|--------------------|
| | 5.000 (Minimum) | 10.00 (Nominal) | 15.00 (Maximum) | | -30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) |
| 7 | -2.480 | | | | -4.950 | | |
| | -5.000 (Minimum) | 0 (Nominal) | 5.000 (Maximum) | | -30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) |

Master: 14-Oct-2009 17:03

| Array Induction Tool – M Wellsite Calibration | | | | | | | |
|---|--------|--------------------------|--------------------|--------------------|--------|------------------------|--|
| Mud Gain Correction | | | | | | | |
| Idx | Value | Coarse – Mag, Real, Imag | | | Value | Fine – Mag, Real, Imag | |
| 0 | 0.8551 | <div><div></div></div> | | | 0.8573 | <div><div></div></div> | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |
| 1 | 0.8551 | <div><div></div></div> | | | 0.8573 | <div><div></div></div> | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |
| 2 | 0.8551 | <div><div></div></div> | | | 0.8573 | <div><div></div></div> | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |

Master: 14-Oct-2009 17:03

Master: 14-Oct-2009 17:03









| Array Induction Tool – M Master Calibration | | | | | | | | |
|---|--------|----------------------|------------------------|----------------------|-------|-------------------------|-----------|--------------------------|
| Electronics Calibration Check – Thru Cal Mag. & Phase | | | | | | | | |
| Idx | Phase | Value | Thru Cal Magnitude V | Nominal | Value | Thru Cal Phase DEG | Nominal | |
| 0 | Master | 0.6205 | <div><div></div></div> | 0.6100 | 180.2 | <div><div></div></div> | 197.0 | |
| 1 | Master | 1.271 | <div><div></div></div> | 1.270 | 179.2 | <div><div></div></div> | 196.0 | |
| 2 | Master | 0.6318 | <div><div></div></div> | 0.6200 | 175.6 | <div><div></div></div> | 192.0 | |
| 3 | Master | 0.7131 | <div><div></div></div> | 0.7000 | 174.9 | <div><div></div></div> | 191.0 | |
| 4 | Master | 1.334 | <div><div></div></div> | 1.340 | 168.7 | <div><div></div></div> | 185.0 | |
| 5 | Master | 1.953 | <div><div></div></div> | 1.960 | 167.0 | <div><div></div></div> | 182.0 | |
| 6 | Master | 1.949 | <div><div></div></div> | 1.960 | 167.0 | <div><div></div></div> | 181.0 | |
| 7 | Master | 1.419 | <div><div></div></div> | 1.410 | 166.2 | <div><div></div></div> | 175.0 | |
| | | 60.00 % (Minimum) | (Nominal) | 140.0 % (Maximum) | | Nom -60.00 (Minimum) | (Nominal) | Nom + 60.00 (Maximum) |

Master: 14-Oct-2009 17:03

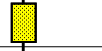

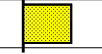



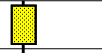

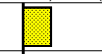



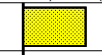

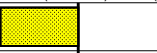

| Array Induction Tool – M Master Calibration | | | | | | | | | |
|---|------------------------------------|---------------------|---------------------|--------|--------|------------------------------------|----------------|----------------------|-----------|
| Electronics Calibration Check – Auxiliary | | | | | | | | | |
| Phase | Array Induction SPA Plus MV | | | Value | Phase | Array Induction SPA Zero MV | | | Value |
| Master | <div><div></div></div> | | | 992.7 | Master | <div><div></div></div> | | | 0.6638 |
| | 941.0 (Minimum) | 991.0 (Nominal) | 1040 (Maximum) | | | -50.00 (Minimum) | 0 (Nominal) | 50.00 (Maximum) | |
| Phase | Array Induction Temperature Plus V | | | Value | Phase | Array Induction Temperature Zero V | | | Value |
| Master | <div><div></div></div> | | | 0.9196 | Master | <div><div></div></div> | | | 0.0006632 |
| | 0.8710 (Minimum) | 0.9170 (Nominal) | 0.9630 (Maximum) | | | -0.05000 (Minimum) | 0 (Nominal) | 0.05000 (Maximum) | |
| Master: 14-Oct-2009 17:03 | | | | | | | | | |

Master: 14-Oct-2009 17:03



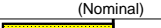

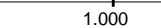

| Array Induction Tool – M Master Calibration | | | | | | | | | |
|---|-------|--|--------------------|--------------------|--------|--|----------------|--------------------|-----|
| Test Loop Gain Correction | | | | | | | | | |
| Idx | Value | Test Loop Gain Correction Magnitude V | | | Value | Test Loop Gain Correction Phase DEG | | | DEC |
| 0 | 1.017 | <div><div></div><div></div><div></div></div> | | | 0.7201 | <div><div></div><div></div><div></div></div> | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 1 | 1.014 | <div><div></div><div></div><div></div></div> | | | 0.7620 | <div><div></div><div></div><div></div></div> | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 2 | 1.015 | <div><div></div><div></div><div></div></div> | | | 0.2948 | <div><div></div><div></div><div></div></div> | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 3 | 1.011 | <div><div></div><div></div><div></div></div> | | | 0.2209 | <div><div></div><div></div><div></div></div> | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |

| | (Minimum) | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) |
|---|---------------------|---|--------------------|---------------------|---|--------------------|
| 4 | 0.9935 |  | | 0.1146 |  | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 5 | 0.9888 |  | | -0.009143 |  | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 6 | 0.9937 |  | | 0.2984 |  | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 7 | 1.007 |  | | -0.05307 |  | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | -3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |

Master: 14-Oct-2009 17:03

| Array Induction Tool – M Master Calibration | | | | | | | |
|---|--------|---|---------------------|--------------------|--------|---|----------------|
| Sonde Error Correction | | | | | | | |
| Idx | Value | R Sonde Error Correction MM/M | | | Value | X Sonde Error Correction MM/M | |
| 0 | -69.04 |  | | | -259.4 |  | |
| | | -231.0 (Minimum) | -56.00 (Nominal) | 119.0 (Maximum) | | -2250 (Minimum) | 0 (Nominal) |
| 1 | 172.8 |  | | | 103.1 |  | |
| | | 114.0 (Minimum) | 159.0 (Nominal) | 204.0 (Maximum) | | -625.0 (Minimum) | 0 (Nominal) |
| 2 | 116.8 |  | | | 63.05 |  | |
| | | 66.00 (Minimum) | 111.0 (Nominal) | 156.0 (Maximum) | | -350.0 (Minimum) | 0 (Nominal) |
| 3 | 64.65 |  | | | -22.90 |  | |
| | | 39.00 (Minimum) | 64.00 (Nominal) | 89.30 (Maximum) | | -250.0 (Minimum) | 0 (Nominal) |
| 4 | 26.78 |  | | | 21.47 |  | |
| | | 15.00 (Minimum) | 25.00 (Nominal) | 35.00 (Maximum) | | -63.00 (Minimum) | 0 (Nominal) |
| 5 | 12.75 |  | | | -15.50 |  | |
| | | 4.000 (Minimum) | 14.00 (Nominal) | 24.00 (Maximum) | | -50.00 (Minimum) | 0 (Nominal) |
| 6 | 11.98 |  | | | -4.060 |  | |
| | | 5.000 (Minimum) | 10.00 (Nominal) | 15.00 (Maximum) | | -30.00 (Minimum) | 0 (Nominal) |
| 7 | -2.480 |  | | | -4.950 |  | |
| | | -5.000 (Minimum) | 0 (Nominal) | 5.000 (Maximum) | | -30.00 (Minimum) | 0 (Nominal) |

Master: 14-Oct-2009 17:03

| Array Induction Tool – M Master Calibration | | | | | | | |
|---|--------|---|--------------------|--------------------|--------|---|--|
| Mud Gain Correction | | | | | | | |
| Idx | Value | Coarse – Mag, Real, Imag | | | Value | Fine – Mag, Real, Imag | |
| 0 | 0.8551 |  | | | 0.8573 |  | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |
| 1 | 0.8551 |  | | | 0.8573 |  | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |
| 2 | 0.8551 |  | | | 0.8573 |  | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) 1.200 (Maximum) |

Master: 14-Oct-2009 17:03

High resolution Integrated Logging Tool–DTS / Equipment Identification

Primary Equipment:

HILT high–Resolution Mechanical Sonde

HILT Rxo Gamma–ray Device

HILT Micro Cylindrically Focused Log Dev

GR Logging Source

HILT High Res. Control Cartridge

HILT Gamma Ray Neutron Scaler DTS

HRMS – B

821

HRGD – B

1879

MCFL –

GLS – VJ

5416

HRCC – B

1813







HCNS – B




HILT Gamma-Ray Neutron Sonde-DTS
HGNS Gamma-Ray Device
HGNS Neutron Detector with Alpha Source




HGNS - B
HGR -
HCNT -




Auxiliary Equipment:
Neutron Calibration Tank
Gamma Source Radioactive
HGNS Housing



NCT - B
GSR - U/Y
HGNH -




| High resolution Integrated Logging Tool—DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|---|---------------------|---------------------|--------|---------------------|---|---------------------|--|--------|---------------------|---|---------------------|--|--------|
| Stab Measurement Summary | | | | | | | | | | | | | | |
| Phase | BS Window Ratio | | | Value | Phase | SS Window Ratio | | | Value | Phase | LS Window Ratio | | | Value |
| Before |  | | | 0.7409 | Before |  | | | 0.4772 | Before |  | | | 0.2941 |
| | 0.7018 (Minimum) | 0.7387 (Nominal) | 0.7756 (Maximum) | | 0.4533 (Minimum) | 0.4771 (Nominal) | 0.5010 (Maximum) | | | 0.2812 (Minimum) | 0.2960 (Nominal) | 0.3108 (Maximum) | | |
| Phase | BS Window Sum CPS | | | Value | Phase | SS Window Sum CPS | | | Value | Phase | LS Window Sum CPS | | | Value |
| Before |  | | | 10330 | Before |  | | | 10520 | Before |  | | | 1172 |
| | 9790 (Minimum) | 10310 (Nominal) | 10820 (Maximum) | | 9998 (Minimum) | 10520 (Nominal) | 11050 (Maximum) | | | 1118 (Minimum) | 1176 (Nominal) | 1235 (Maximum) | | |
| Before: 30–Nov–2009 15:13 | | | | | | | | | | | | | | |





| High resolution Integrated Logging Tool—DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|---|-------------------|-------------------|-------|-------------------|---|-------------------|--|-------|-------------------|---|-------------------|--|-------|
| Photo—multiplier High Voltages Calibrations | | | | | | | | | | | | | | |
| Phase | BS PM High Voltage (Command) V | | | Value | Phase | SS PM High Voltage (Command) V | | | Value | Phase | LS PM High Voltage (Command) V | | | Value |
| Before |  | | | 1478 | Before |  | | | 1617 | Before |  | | | 1357 |
| | 1373 (Minimum) | 1473 (Nominal) | 1573 (Maximum) | | 1498 (Minimum) | 1598 (Nominal) | 1698 (Maximum) | | | 1249 (Minimum) | 1349 (Nominal) | 1449 (Maximum) | | |
| Before: 30–Nov–2009 15:13 | | | | | | | | | | | | | | |

| High resolution Integrated Logging Tool–DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|--|--------------------|--------------------|-------|--------------------|--|--------------------|--|-------|--------------------|--|--------------------|--|-------|
| Crystal Quality Resolutions Calibration | | | | | | | | | | | | | | |
| Phase | BS Crystal Resolution % | | | Value | Phase | SS Crystal Resolution % | | | Value | Phase | LS Crystal Resolution % | | | Value |
| Before |  | | | 11.16 | Before |  | | | 10.45 | Before |  | | | 8.654 |
| | 10.38 (Minimum) | 11.38 (Nominal) | 12.38 (Maximum) | | 9.384 (Minimum) | 10.38 (Nominal) | 11.38 (Maximum) | | | 7.717 (Minimum) | 8.717 (Nominal) | 9.717 (Maximum) | | |
| Before: 30–Nov–2009 15:13 | | | | | | | | | | | | | | |

| High resolution Integrated Logging Tool—DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|---|-------------------|-------------------|-------|-------------------|---|-------------------|--|-------------------|-------------------|---|--|--|-------|
| MCFL Calibration | | | | | | | | | | | | | | |
| Phase | Raw B0 Resistivity OHMM | | | Value | Phase | Raw B1 Resistivity OHMM | | | Value | Phase | Raw B2 Resistivity OHMM | | | Value |
| Before |  | | | 3832 | Before |  | | | 3792 | Before |  | | | 3797 |
| | 3565 (Minimum) | 3875 (Nominal) | 4185 (Maximum) | | 3524 (Minimum) | 3830 (Nominal) | 4136 (Maximum) | | 3524 (Minimum) | 3830 (Nominal) | 4136 (Maximum) | | | |
| Before: 30–Nov–2009 15:08 | | | | | | | | | | | | | | |


| High resolution Integrated Logging Tool-DTS Wellsite Calibration | | | | | | | |
|--|---|--------------------|--------------------|--------|---|--------------------|--------------------|
| HILT Caliper Calibration | | | | | | | |
| Phase | HILT Caliper Zero Measurement IN | | Value | Phase | HILT Caliper Plus Measurement IN | | Value |
| Before |  | | 7.815 | Before |  | | 11.89 |
| | 6.000 (Minimum) | 8.000 (Nominal) | 10.00 (Maximum) | | 9.000 (Minimum) | 12.00 (Nominal) | 15.00 (Maximum) |
| Before: 30-Nov-2009 15:06 | | | | | | | |

| High resolution Integrated Logging Tool—DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|---|--------------------|--------------------|-------|--------------------|---|--------------------|--|-------|--------------------|---|--------------------|--|-------|
| Detector Calibration | | | | | | | | | | | | | | |
| Phase | Gamma Ray Background GAPI | | | Value | Phase | Gamma Ray (Jig – Bkg) GAPI | | | Value | Phase | Gamma Ray (Calibrated) GAPI | | | Value |
| Before |  | | | 77.42 | Before |  | | | 175.8 | Before |  | | | 165.0 |
| | 0 (Minimum) | 30.00 (Nominal) | 120.0 (Maximum) | | 159.8 (Minimum) | 175.8 (Nominal) | 191.8 (Maximum) | | | 150.0 (Minimum) | 165.0 (Nominal) | 180.0 (Maximum) | | |
| Before: 30–Nov–2009 15:06 | | | | | | | | | | | | | | |

| High resolution Integrated Logging Tool–DTS Wellsite Calibration | | | | | | | |
|--|---|--|-------|--------|---|--|-------|
| Zero Measurement | | | | | | | |
| Phase | CNTC Background CPS | | Value | Phase | CFTC Background CPS | | Value |
| Master |  | | 26.34 | Master |  | | 27.85 |
| Before |  | | 26.99 | Before |  | | 28.31 |



| | | | | | |
|--------------------------|--------------------|--------------------|---------------------------|--------------------|--------------------|
| Before | Before | Before | Before | Before | Before |
| 5.000 (Minimum) | 26.34 (Nominal) | 40.00 (Maximum) | 5.000 (Minimum) | 27.85 (Nominal) | 40.00 (Maximum) |
| Master: 8-Oct-2009 13:16 | | | Before: 30-Nov-2009 15:07 | | |

| High resolution Integrated Logging Tool—DTS Wellsite Calibration | | | | | | | | | | | | | | |
|--|-------------------------------|-------------------|-------------------|-------|-------------------|------------------------------|-------------------|--|-------|--------------------|------------------------|--------------------|--|-------|
| Ratio Measurement | | | | | | | | | | | | | | |
| Phase | Thermal Near Corr. (Tank) CPS | | | Value | Phase | Thermal Far Corr. (Tank) CPS | | | Value | Phase | CNTC/CFTC (Tank) | | | Value |
| Master | <div><div></div></div> | | | 5423 | Master | <div><div></div></div> | | | 2272 | Master | <div><div></div></div> | | | 2.387 |
| | 4700 (Minimum) | 5800 (Nominal) | 6900 (Maximum) | | 1900 (Minimum) | 2400 (Nominal) | 2900 (Maximum) | | | 2.120 (Minimum) | 2.159 (Nominal) | 2.540 (Maximum) | | |
| Master: 8-Oct-2009 13:16 | | | | | | | | | | | | | | |

| High resolution Integrated Logging Tool-DTS | | |
|---|---|--------------------|
| Wellsite Calibration | | |
| Accelerometer Calibration | | |
| Phase | Z-Axis Acceleration F/S2 | Value |
| Before |  | 32.02 |
| | 31.53 (Minimum) | 32.19 (Nominal) |
| | | 32.84 (Maximum) |
| Before: 2-Dec-2009 11:03 | | |

| High resolution Integrated Logging Tool–DTS Master Calibration | | | | | | | | | |
|--|--------------------|--------------------|--------------------|-------|--------|--------------------|--------------------|--------------------|-------|
| Inversion results | | | | | | | | | |
| Phase | Rho Aluminum G/C3 | | | Value | Phase | Rho Magnesium G/C3 | | | Value |
| Master | | | | 2.602 | Master | | | | 1.687 |
| | 2.586 (Minimum) | 2.596 (Nominal) | 2.606 (Maximum) | | | 1.676 (Minimum) | 1.686 (Nominal) | 1.696 (Maximum) | |
| Phase | Pe Aluminum | | | Value | Phase | Pe Magnesium | | | Value |
| Master | | | | 2.559 | Master | | | | 2.623 |
| | 2.470 (Minimum) | 2.570 (Nominal) | 2.670 (Maximum) | | | 2.550 (Minimum) | 2.650 (Nominal) | 2.750 (Maximum) | |
| Master: 29–Nov–2009 14:51 | | | | | | | | | |

| High resolution Integrated Logging Tool–DTS Master Calibration | | | | | | | | | | | | | | |
|--|------------------------|----------------|---------------------|--------|---------------------|------------------------|--------------------|--|--------|---------------------|------------------------|--------------------|--|--------|
| Deviation Summary | | | | | | | | | | | | | | |
| Phase | BS Average Deviation % | | | Value | Phase | SS Average Deviation % | | | Value | Phase | LS Average Deviation % | | | Value |
| Master | | | | 0.2941 | Master | | | | 0.3866 | Master | | | | 0.9530 |
| | –0.6000 (Minimum) | 0 (Nominal) | 0.6000 (Maximum) | | –1.000 (Minimum) | 0 (Nominal) | 1.000 (Maximum) | | | –1.500 (Minimum) | 0 (Nominal) | 1.500 (Maximum) | | |
| Phase | BS Max Deviation % | | | Value | Phase | SS Max Deviation % | | | Value | Phase | LS Max Deviation % | | | Value |
| Master | | | | 0.5746 | Master | | | | 2.080 | Master | | | | 2.032 |
| | –1.600 (Minimum) | 0 (Nominal) | 1.600 (Maximum) | | –2.500 (Minimum) | 0 (Nominal) | 2.500 (Maximum) | | | –3.500 (Minimum) | 0 (Nominal) | 3.500 (Maximum) | | |
| Master: 29–Nov–2009 14:51 | | | | | | | | | | | | | | |

| High resolution Integrated Logging Tool-DTS Master Calibration | | | | | | | | | |
|--|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Zero Measurement | | | | | | | | | |
| Phase | CNTC Background CPS | | | Value | Phase | CFTC Background CPS | | | Value |
| Master |  | | | 26.34 | Master |  | | | 27.85 |
| | 5.000 (Minimum) | 26.34 (Nominal) | 40.00 (Maximum) | | | 5.000 (Minimum) | 27.85 (Nominal) | 40.00 (Maximum) | |
| Master: 8-Oct-2009 13:16 | | | | | | | | | |

| High resolution Integrated Logging Tool–DTS Master Calibration | | | | | | | | | | | |
|--|-------------------------------|-------------------|-------------------|--------|------------------------------|-------------------|-------------------|--------|------------------------|--------------------|--------------------|
| Tank Measurement | | | | | | | | | | | |
| Phase | Thermal Near Corr. (Tank) CPS | | Value | Phase | Thermal Far Corr. (Tank) CPS | | Value | Phase | CNTC/CFTC (Tank) | Value | |
| Master | <div><div></div></div> | | 5423 | Master | <div><div></div></div> | | 2272 | Master | <div><div></div></div> | 2.387 | |
| | 4700 (Minimum) | 5800 (Nominal) | 6900 (Maximum) | | 1900 (Minimum) | 2400 (Nominal) | 2900 (Maximum) | | 2.120 (Minimum) | 2.159 (Nominal) | 2.540 (Maximum) |
| Master: 8–Oct–2009 13:16 | | | | | | | | | | | |

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A 8980

Auxiliary Equipment:
DTCH Telemetry Cartridge Housing

ECH - KC

Company: **Kerr McGee Oil and Gas Onshore, LP**

Schlumberger

Well: **Parterre 13-16**

Field: **Spindle**

County: **Adams**

State: **Colorado**

Platform Express
Micro Log